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ARTICLE XXIV.

CLINICAL REMARKS ON THE BOWEL-AFFECTIONS OF CHILDREN IN THE MEDICAL WARDS OF THE MERCY HOSPITAL.

BY N. S. DAVIS, M.D., Professor of Clinical Medicine, &c.

GENTLEMEN:—It is only a few days since, that I directed your attention to a case of diarrhœa, occuring as a sequel of rubeola. The frequent occurrence of that disease during the months of July and August, especially in all the more populous cities of our country, and its fatality among young children, renders no apology necessary for calling your attention to it again, in connection with the several little children before you. You see in all of them a striking similarity of physiognomy or external appearance of disease. There is the same sober, melancholy expression of countenance; the same pale, thin lips, sunken eyes, and blanched skin; the same small weak pulse, and general emaciation, in each. You see their limbs attenuated, the muscles soft and flabby, and the skin hanging in dusky wrinkles on the neck. I am informed that they have had diarrhœa about two weeks; the discharges being thin, like green or yellowish water, and occurring as often as six or eight times in the twenty-four hours, with vomiting occasionally after drink-

ing freely. Their skin over the trunk of the body, and especially over the abdomen, is warmer and dryer than natural, while the extremities are cool. A spell of restlessness and crying or moaning a few minutes before a passage from the bowels indicates the existence of abdominal pains or gripings, though in many cases these are almost entirely absent. They have little or no appetite for anything but water, although the thirst is, in some cases, so great that they drink almost any bland liquid greedily.

The cases of irritation of the mucous membrane of the alimentary canal, or the *summer complaints of children*, as met with in general practice, may be arranged into three groups. The first group embraces those cases in which the patient is suddenly attacked with copious vomiting and purging of serous fluid, sometimes tinged with bile, and sometimes hardly staining the napkin.

Under the depleting influence of these evacuations the countenance becomes pale and contracted, the eyes sunken, the pulse small and frequent, the extremities cold and shrunken, the urine scanty or entirely suppressed, and the mind lethargic, with spells of great restlessness. In the more severe attacks, these effects follow so rapidly that collapse and death are reached in from six to twenty-four hours.

In most cases, however, after the first eight or ten hours, the discharges become less frequent and copious, the vomiting occurring only when drink is taken, and the passages from the bowels being less both in quantity and frequency.

Still very little nourishment is retained by the stomach, and the greater part of that little is hurried through the intestines without change. Consequently the little patient continues rapidly to emaciate and, unless counteracted by appropriate treatment, will usually reach the stage of fatal exhaustion in from one to three weeks. In the advanced stage of some of these cases, in addition to all the ordinary symptoms of exhaustion, there occurs constant vigilance or wakefulness, with rolling of the head, tossing of the hands, and sometimes moaning. These symptoms induce the parents and nurses to think the

disease "has gone to the head." And I have known several cases of this kind in which the attending physician had been applying cold applications to the head, blisters behind the ears, and, in two cases, even leeches and a calomel purge, under the impression that the symptoms indicated the supervention of inflammatory action in the brain or its membranes. I need not remind you that in the cases alluded to, such opinions and practice are entirely erroneous; and that the symptoms described are the result, not of inflammatory action in the brain, but of a true anemic condition of that organ. It is well known that very excessive losses of blood will often produce the most distressing feelings in the head, accompanied by morbid vigilance or wakefulness, and sometimes slight delirium. This anemic condition of the brain, whether from hemorrhage or from exhausting serous discharges, may be distinguished from inflammation and active congestion, by close attention to the pupil of the eye, the corotid arteries, and the anterior fontanelle, if this still remains open. It is well known that cerebral inflammation produces contraction of the pupils, fulness and hardness of the corotids, and fulness of the fontanelle. It is not until the inflammation has terminated in effusion sufficient to produce compression, that the pupils become dilated. But the same amount of effusion that would dilate the pupils, would produce also stupor or coma, and still greater fulness of the fontanelle. Whereas in anemia of the brain, the dilated pupil and staring expression is accompanied by restless sleeplessness instead of coma, by softness of the corotids, and by a sunken or depressed fontanelle. Many of the cases included in what we have called the first group, after presenting the active symptoms of cholera morbus for the first few days, undergo a different change. The vomiting ceases, the discharges from the bowels remain frequent, but become small in quantity, and composed chiefly of mucus, often streaked with blood. Simultaneous with this change in the discharges, more or less febrile reaction comes on, causing the skin to become dry and warm, especially over the abdomen and trunk of the body; the pulse more full and quick, and indications of more frequent and severe pains in the ab-

domen. In a word, the symptoms become indicative of ileo-colitis or dysentery.

The second group of cases embraces all those (and they make a majority of all the bowel-affections of children during the hot months of summer), which commence with simple, thin, or serous evacuations from the bowels, without the intermixture of either blood or mucus, and without accompanying fever. The evacuations in the several cases constituting this group vary much in their color, consistence, and frequency. In some cases they are from the beginning so thin and colorless as to leave no more stain or residue on the linen than turbid water; and so large in quantity as to prostrate the patients very rapidly; causing the skin to become blanched and cool, the eyes sunken, the pulse small and weak, with all the indications of approaching collapse. In many instances the discharges of this character, after continuing long enough to induce a decided deficiency in the watery and saline constituents of the blood, and considerable prostration, become smaller in quantity, less frequent, and mixed with a little mucus. At the same time a moderate febrile reaction takes place, causing the child to become more fretful and the abdomen more hot. The color of the intestinal discharges varies much, being sometimes green, at others yellow, and again white. They vary much also in consistence and odor; being sometimes thin as water and almost as odorless, and at others only semi-fluid, frothy, and extremely offensive.

If the fœces are closely examined they will generally be found to contain more or less of the food or drink taken, which has passed through the alimentary canal with little or no change, and also numerous epithelial cells from the surface of the mucous membrane. The urine is generally scanty in proportion to the copiousness of the intestinal discharges. If the progress of the disease is not arrested by appropriate treatment, the patient continues steadily to loose flesh and strength, until the emaciation is as extreme as in the last stage of pulmonary tuberculosis, and the little sufferer sinks quietly into the arms of death, from simple exhaustion. In some cases, however, after the disease has continued three or four weeks, the patients

partially recover. That is, the stomach and upper part of the alimentary canal appear to recover their functions; the child takes nourishment well, retains it, and regains a degree of cheerfulness. The discharges from the bowels, however, continue more frequent than natural, varying from two to six or eight times in the twenty-four hours. They are usually semi-fluid, of a light yellow or greyish color, often frothy, and always more or less offensive. They often contain curds of milk and other undigested particles of food. The urine is generally less in quantity than natural, and contains such an excess of phosphates and lithates as to give it a whitish or milky appearance soon after being voided. In this state the patient usually recovers a good appetite, often indeed, a morbid craving for food. But so large a part of what is taken, is either hurried through the bowels or only partially assimilated, that the emaciation continues and sometimes slowly increases. The abdomen becomes gradually more and more tumid, until after a few months it is greatly distended, presenting a strong contrast to the emaciated extremities. The distended abdomen is generally tympanitic, indicating a simple accumulation of gases, though sometimes hard tumors may be felt through the walls of the abdomen, consisting of enlarged mesenteric glands.

When disease assumes this form, it generally takes the name of tabes-mesenterica or marasmus, and may continue one or two years before ending in death or recovery.

The third class or group of cases of bowel-affections occurring in young children, during the summer months, are distinguished from the two preceding classes, by the presence of distinct febrile action at the commencement of the attack. With the first onset of vomiting, or purging, or both, the skin is found hot and dry; the lips parched; the pulse more firm and frequent; and the patient more fretful, and exhibiting more signs of pain. If vomiting exists in these cases, it is generally more a frequent wretching or straining to vomit, with only a slight discharge of thin mucus, sometimes colorless but often tinged yellow or green with bile. Of course, whatever food or drink is taken is promptly rejected.

The intestinal evacuations are generally frequent, accompanied by signs of pain, and almost always affording traces of mucus. When the disease is limited chiefly to the ileum and upper part of the colon, the discharge is mostly a thin serous fluid, tinged green or yellow and presenting only traces of mucus. When the lower part of the colon and rectum are the chief seat of disease, evacuations are almost wholly mucus, more or less streaked with blood, and accompanied by tenesmus and straining. Emaciation progresses rapidly, and there is more restlessness, accompanied by a fretful, peevish temper, than in the other class of cases.

Causes.—If you credit the statements of mothers and nurses, you will have no difficulty in determining the efficient cause of all these intestinal-affections of summer. In nineteen cases out of twenty, they will tell you, with the utmost confidence, that it is "the teeth;" meaning thereby, that the growth of the teeth causing them to press on the gums, is the direct cause of the irritation of the mucous membrane of the alimentary canal. And in the twentieth case, they will be equally confident that *worms* are the cause of all the mischief. So confidently and universally are these notions entertained, that hundreds of mothers, especially of the poorer classes, wholly neglect to seek medical aid for their little ones when attacked with diarrhœa, until it has run on two, three, or even four weeks, and they are reduced to skeletons, with the skin hanging in folds on their emaciated limbs and necks, and they are in a hopeless state of exhaustion.

If you ask the mother why she neglected the child so long, her ready and uniform reply is: "Oh! it was teething." And so she has been looking every day for some one or more of the teeth to come through the gums, to afford relief; and by way of doing *something*, she has very likely given one or more doses of castor oil or vermifuge.

This, however, strictly in accordance with the homœopathic principle, "similia similibus curantur," is nevertheless only calculated to hurry the patient a little faster towards the grave. If you suggest a doubt as to the part the teeth play in causing

the disease, you will be assured that the gums are "swollen," and that the child is constantly "biting the fingers, or nipple, or whatever else is put into its mouth," and this, in their estimation, is abundant proof that the teeth cause all the difficulty. Now, gentlemen, I call your attention particularly to this subject of teething, because the observation of many years has satisfied me, that the popular errors in relation to it, cause the needless sacrifice of thousands of infants annually.

Not only the mother and the nurse, make it an excuse for neglecting to seek judicious medical advice, in the first and most curable stage of the diseases of infancy, but many physicians are in the habit of directly encouraging this neglect, by telling those who bring their children for advice, with the milder forms of diarrhœa, "that they are *teething*, and it cannot be expected that they will be very well until that process is completed." But is it true, that the natural growth of the teeth and their exit from the gums, is a cause of disease? I think not. First, because it is a strictly physiological process, as much so, as the growth of the hair or nails. Second, because the gum is a structure neither endowed with a high degree of sensibility, nor supplied with nerves of extensive sympathetic relations. Third, because the constant disposition of the child to put everything in its mouth, and bite freely with its gums, proves them to be neither tender nor sensitive, and without these there can be no irritation.

That the growth of the teeth is not the cause of cholera infantum and the diarrhœas of summer, will be fully evident to you from the following well established facts:—

The teeth of children are growing at all seasons of the year, in January as much as in July; and hence, whatever diseases arise therefrom, would be liable to occur as much at one season as another. But the diseases under consideration are restricted in their prevalence almost entirely to the hottest part of the year. This, in our latitude, is embraced in the months of July, August, and September. So true is this, that the number of deaths from these diseases alone, gives to the months named, an average annual mortality more than double that of any other

months in the year. And yet, notwithstanding these obvious and universally admitted facts, we daily hear mothers, nurses, and doctors talking of "teething" as the common and efficient cause of the intestinal complaints of summer.

Again, you will often hear it alleged that the eating of unripe and spoiled fruit and vegetables, is the principal cause of intestinal summer complaints. The fallacy of this is sufficiently shown by the fact, that a majority of the children attacked, are so young that they have not eaten fruit or vegetables of any kind.

The real causes of the summer complaints of children, both predisposing and exciting, will be easily inferred from a careful study of the localities, the season of the year, and the special circumstances under which they occur. They occur much more severely in densely populated cities than in rural districts. They are particularly prevalent in all those cities and populous towns of our country occupying that climatic belt or zone characterized by the greatest contrast of the seasons, that is, the greatest difference between the coldest days of winter and the hottest days of summer. This belt or zone, so far as regards that part of the United States east of the Rocky Mountains, is included between the paralells of 31° and 42° north latitude. In a large part of this territory the difference in temperature between the coldest days of winter and the hottest of summer, is, from 75° to 140° of Fahrenheit.

It can hardly be doubted, but this extreme annual variation of temperature operates as a predisposing cause of intestinal fluxes during the warm part of the year. This predisposition is also increased by habitual dampness of the atmosphere, by the various impurities that exist in the air of large cities, and by that morbid material or agent usually called malaria. Age, too, exerts an important predisposing influence; the attacks being far more numerous in infancy and early childhood, than at any subsequent period of life.

There are satisfactory anatomical reasons for this. The mucous membrane of the digestive organs at birth, is extremely delicate, and both the epithelial layer and the numerous gland-

ular structures belonging to it, are imperfectly developed; so much so as to be fitted for contact with only the most simple fluids, such as good milk. These structures do not complete the development and acquire the compactness and diminished sensitiveness of complete or mature organization until the child is at least three years old.

But the period during which the most rapid development takes place, and during which there is consequently the greatest susceptibility to morbid impressions, is the first two years of life.

The teeth being a part of the digestive apparatus, their growth and protrusion through the gums, constituting what is familiarly called "teething," takes place during this same two years, and simply affords a visible index of the rapid development of the mucous membrane, and all other parts of that apparatus, by which it acquires that diminished sensibility, that increased compactness of structure, and its glandular appendages that secretory power, which enables it, not only to receive and digest a greater variety of food, but also, to withstand a greater variety and intensity of morbid impressions without inducing disease. Remember then, gentlemen, that the growth of the teeth is only a *coincident* of corresponding growth or development in the whole digestive canal; and to attribute the important diseases of the mucous membrane of that canal, during the first two years of life, to such growth of the teeth, is as absurd as it would be to attribute them to the *coincident* growth of the hair on the child's head, or the nails on its fingers.

While we attribute to the extremes of the seasons, confinement in the nursery, dampness of the atmosphere, malarious and other impurities, a predisposing influence; I am fully satisfied that the immediate exciting or efficient cause, is a high atmospheric temperature.

During thirteen years residence in this city, I have annually noted the commencement of the prevalence of diarrhœas and cholera affections among the children, and have uniformly found such commencement to be coincident with the first week of continuous hot summer weather. One or two hot days at a

time is not sufficient; but when the heat is continuous for five or six in succession, it has been invariably accompanied and followed by more or less prevalence of diarrhœa and cholera infantum. This first week of hot weather in this locality, varies in the time of its occurrence in different years, but may be confidently looked for between the twentieth of June and the fifteenth of July. From that time to the end of July new attacks continue to multiply with rapidity. During the month of August new attacks are much less frequent, but a large proportion of the milder cases commencing in July, are not brought to the notice of the physician until August. So to, a very large proportion of the fatal cases that commence during the last half of July do not reach the fatal termination until in August. Hence, the month of August uniformly shows much the highest ratio of mortality, and is of course regarded by the people as the most sickly month of the year. But a careful observation and record in relation to the time of attack, will show that three-fourths of all the cases of simple diarrhœa or summer complaint, cholera infantum, and cholera morbus, date their commencement during the first three weeks of hot weather, which is almost uniformly in July. To understand the *modus operandi* of caloric, or a high temperature in producing disease, we must have a clear conception of the normal properties of living, organized matter, and the manner in which those properties may be modified by exterior agents. A careful analysis of the phenomena connected with organization and life, shows that every organized living structure, whether vegetable or animal, is possessed of two properties elementary and essential to the existence of matter in an organized and living state. The first, is an affinity by which the organic atoms are made to assume a definite arrangement, constituting the primary structures and types of organization. This property for convenience we call *vital affinity*.

The second, is a susceptibility to impressions from exterior influences, or a capability of being acted upon. This susceptibility must not be confounded with nervous *sensibility*, which is merely one of the functions of nerve structure, and not an

elementary property of organized matter. The two elementary properties here alluded to, will be most clearly appreciated by reference to the simpler types of organization, such as the germinal cells of the ovarium, the egg, or the acorn. You examine the latter, for instance, and you will find the organic atoms of which it is composed, arranged in a certain, definite, and uniform manner, in strict obedience to a special *affinity*. That the particles thus arranged possess a special *susceptibility* is easily demonstrated by the action of certain exterior agents upon them.

Thus, the acorn lying dry upon the table, manifests no change any more than a piece of chalk lying by its side; but let a certain degree of caloric or heat and moisture be brought to bear upon it, and a change immediately commences, which, continued under the guidance of the special affinity among its particles, soon results in the development of a miniature oak. But the piece of chalk exposed to the same influences is only a piece of chalk still; thus demonstrating that the acorn, though passive or dormant, possessed a susceptibility peculiar to organized matter.

If you thus, see clearly what we mean by *vital affinity* and *susceptibility*, as the elementary properties of all organized living matter; you are prepared to understand the effects of a high temperature, both as a predisposing and exciting cause of disease. Caloric is one of those inponderable agents capable of pervading all matter, whether organic or inorganic; and its effect is to expand all bodies by causing the atoms of which they are composed to be separated farther from each other. Hence, it is the great antagonistic power to affinity whether simple, elective, or vital. Its direct effects upon the living tissues of the human system, constitute no exception to the general law of its operation upon other matter. Every successive addition of caloric or increase of temperature increases the expansion of the tissues, and of course lessens, in the same proportion, the vital affinity between the atoms of which the tissues are composed. If you wish for proof of this you have only to immerse your finger a few minutes in water of as low temperature as

can be borne without injury; fit a ring accurately to it, and then immerse it the same length of time in water as warm as can be borne, and you will find the size of the finger so increased that you will probably be unable to get the same ring on or off. But caloric not only expands living tissues, thereby diminishing vital affinity, but it also *increases* their susceptibility. It is chiefly by its power, thus to diminish the tonicity or compactness of the tissues, while it increases their irritability or susceptibility, that caloric or a high temperature becomes an efficient predisposing or exciting cause of disease. Acting more directly on the cutaneous surface, and both by continuity of structure and close physiological sympathy, also on the whole internal mucous surface, a high atmospheric temperature renders these structures morbidly sensitive, while their expansion renders them more lax, and thereby puts them in the most favorable condition for sudden and rapid fluxes of fluids into and through them. Hence it is, that in the midst of summer all classes and all ages of people are more or less disposed to intestinal-affections, characterized by increased flow of fluids, such as diarrhœa, cholera morbus, etc. What is thus a predisposition in all classes, becomes, in children at that age when the mucous membrane is yet undergoing development, as already described, sufficient to constitute positive disease. If to this is added further depressing and relaxing effects of confinement in the nursery, or in the impure air of narrow streets and alleys, inhabited by the poor, and the smaller quantity of oxygen inhaled when the atmosphere is rarified by a high temperature, we shall have no difficulty in explaining the annually destructive prevalence of bowel-affections in young children, during the hot months of July and August.

But, gentlemen, I have unconsciously spent so much time in the present explanatory digression, and in the preceding examination of these children, that all comments on the pathology of the diseases under consideration, and on their treatment, must be deferred until the next clinic hour.

[*Continued in the next Number.*]

ARTICLE XXV.

SURGICAL NOTES FROM THE ARMY.

ARMY OF TENNESSEE,
CAMP BETHEL, *June* 16, 1862.

D. W. STORMONT, M.D.,
Sec'y Esculapian Society,

DEAR SIR:—I did not intend that this letter should be prefaced by an apology, as I had many *notes*, taken under a variety of circumstances, varying from the din and smoke of battle, to the cool and quiet of the hospital; from which I *intended* to cull something that I hoped would be of interest. Those *notes*, by *mistake*, are on their way, I trust, to my home in Paris. Why I did not write sooner is due to the fact that I have been waiting for the rebels to lay down their arms and surrender, so that I could leave without a *fight* behind me; and also, from the fact that I hoped to be with you in person at our next meeting, and I may be yet.

The few lines sent will be devoted to generalizations, as I cannot mention special cases; and I will devote them to recording a small part of an experience which has not been small, during the past year. There are questions of importance, which are yet discussed in our Journals. And I shall state my opinions, based upon observation. I cannot go far into the discussion of these things, but will copy the original notes, taken on the field, of two or three cases; "showing the effects of chloroform," and which may assist in settling the point, as to whether it is or is not a "depressing agent."

On Saturday, at Donelson, there was brought to the field-hospital, Alex. G., of Shawneetown; within the previous ten minutes, he had been struck with a missile, which had inflicted a terrible compound injury of the right thigh. The wound through the integuments was apparently incised, in the shape of a Y, and about nine inches in length. The middle and lower thirds of the femur were reduced to fragments, while the flesh within the skin was a pulpy mass. The case determined itself; and amputation was immediately settled upon.

The patient was one of the finest specimens of muscular development I had ever seen; his spirits were buoyant, and he was willing to submit to anything. The question was, "shall we wait until reaction takes place?" as his pulse indicated great physical depression. Nothing else stood in the way of immediate operation; and as the wounded were coming thick and fast, it was determined to proceed. The napkin and sponge holding the chloroform were applied in the usual way; and not more than three inhalations had been taken, before the pulse rose rapidly in volume, and decreased in proportion in velocity. The extent of the injury necessitated a very high operation, and the saw was used within three-fourths of an inch of the trochanter major. So close, indeed, was the resection of the bone made to the articulation, that it was thought, at one time, to remove the head of the femur; but such an operation not being imperative, it was abandoned. The flaps were brought together after a couple of hours; a good stump was obtained; and the man recovered without an untoward symptom; and, to use his own words, in a letter to myself, "there was not a thimbleful of matter from the cut." Here was a case which presented every phase on which a safe opinion might be predicated. The health; the strength; the moral and mental courage; the extent and severity of the injury; the extreme prostration, indicated by the rapid and feeble pulse, and the anxious expression of the countenance; and the prompt and complete reaction on the first administration of the anæsthetic, would lead us safely to the conclusion that chloroform is a stimulent, under certain circumstances. When the vital powers are overcome or held in abeyance by an injury, then it is, the chloroform, like any other agent, calculated to relieve or unloose a chained vitality, becomes indirectly not only stimulating, but supporting in its character. At the close of the operation, and while yet under the influence of the agent, the pulse, in volume and rhythm, was at a fair, healthy standard. I will say here, in connection with this case, that after the removal of the limb from the table, I took from its bed, among the posterior muscles of the thigh, a shell, intact, known as a *twelve pounder*. Its diameter was 4½

or 5 inches, a perfect sphere, without any apparent connection with the incised wound in the skin. The patient sat up and held the edges together, while I inserted the stitches in the flaps.

Case II.—John E——t, aged 17, was struck with a round ball, one ounce, which grazed the anterior face of the thigh, ranging across and backward, completely severing the left seminal cord, and making an incision in the scrotum, from above downwards, two and a-half inches in length, passing through the perineum obliquely, and lodging against the tuberosity of the ischium, on the right. The nervous depression was very great; pulse ranging from 130 to 140; countenance pale and anxious; disposed to sigh frequently; thirst unquenchable. I was alone; but provided with a field knapsack. I administered chloroform until the pulse rose perceptibly; gave a small dose of brandy and water; and continued the use of the chloroform. While under its influence, I ligated the spermatic artery; removed the left testicle; cut out the ball; closed the wound; and when he was restored to consciousness, neither his pulse or appearance indicated that there was much the matter. He is now with his regiment, the 8th, doing duty.

I can cite a score of similar cases, presenting every degree of severity, but all attended with extreme depression, in which chloroform produced the most salutary effects upon the pulse; and were I brought in connection with a patient, where the use of this agent was demanded, no degree of prostration, however intense, would induce me to withhold or delay its use. I refer, of course, to those cases where the depression is consequent upon recent injury, as it is in this connection that I would discuss its effects.

AMPUTATIONS, AND OTHER MAJOR OPERATIONS.

This is a heavy text, but I will try to be brief. Experience has taught me that however much good surgery may be taught, there is a good deal of bad, practiced; and a vast amount of unnecessary mutilation. The first question is: What amount of injury will justify an operation? This is, of course, dependant on a thousand outside influences, which must be thrown on the

balance for and against. On the field, where an operation is unavoidable, the *sooner the better.* If reaction is slow, *give chloroform;* relieve the pain; remove the effects of the shock; unloose the vital powers, which struggle hopelessly against an overwhelming injury; and then the sooner the system is relieved from the torn and lacerated limb, and a clean cut supplies its place, the better for the patient and the surgeon. *Primary operations are alone successful in saving life,* where it is life or limb, and they must be performed prior to, or during the stage of reaction. They must be performed on the field, before the removal of the patient, or the chances are lessened a thousand fold. There are what are called secondary operations. These are made up of the *removal of a limb,* (after the stage of healthy reaction is passed,) *and the death of the patient.* I will endeavor to make myself understood without being prolix.

When a patient suffers from a compound injury made up of bruised and lacerated flesh and broken bone, without involving the loss of the important vessels, the rule is to *amputate;* the *books* say amputate; professors of surgery, who visit our battle fields with a score of students at their heels, say amputate; and the students at the professor's heels *do* amputate. It matters not to them whether the wound is four hours or four days old, off goes the limb, and out goes the patient; for I challenge denial when I assert that 99 of every 100 of those who were operated on during the *irritative* stage died. This irritative condition commences from 12 to 48 hours after the reception of the injury, and continues from 7 to 20 days, or longer, according to circumstances; and there is no opportunity for the use of the knife during that period, be it long or short. Here, among these cases, conservative surgery finds its field of labor, and the conservative surgeon his element. The knife, for the removal of a limb, is foreign to his thoughts; but every energy is exercised, not only to save life, but to save the important member. He watches his patient closely; sustains his strength; guards against accidents; notes his pulse; and, finally, when the system has become accustomed to the injury, and manifests its regained power and equalized action, by the

formation of healthy pus, he asks himself the question, "How little can I venture to throw away?" and acts accordingly. Conservatism, *even in military surgery*, will stand the test; and no sooner is the *itch* for cutting allayed, by an overplus of work, than the most devoted tinkerer with the knife is more disposed to try to save a limb than acquire skill. It may be that I am reviewing only *two* of the *three* sides to the question, and am not judging impartially; but time will, I believe, bear me out fully in all important points.

At Donelson, I worked for four days, in the rear of my division, most of the time dressing the wounds on the spot where the patient fell. During that fight, I dressed 118 wounds, involving many minor operations, and performed 16 capital operations. Not one of the operations performed on the field had an unfavorable termination, while of those where I was *compelled*, as a *dernier resort*, to use the knife, two days after the battle or longer, *scarce one lived.* It is true the latter were few, but they sufficed to prove to me conclusively, that when the first opportunity has been lost, the second rarely or never presents itself: unless connected with some untoward circumstances, rendering extreme measures necessary. Your patient will die if you operate, and if he survives the shock, passes the irritative stage, aggravated by transportation, the conservative surgeon will always have sufficient faith in the skill of nature to help him save a limb, and with it a life.

I will pass from Donelson to the post hospital at Savanna, where our worthy PRESIDENT found me with 1685 wounded soldiers, from the battle field of Shiloh. The surgery at this point was conservative through compulsion. Overwhelmed with the rush of patients, and being compelled to create something out of nothing, it was many days before I could give a thought to other than administrative duties belonging to my position. Among the assistants assigned me were only *two* who had any practical knowledge of surgery. On visiting the hospitals, and taking a general view of all the cases, I could only say, "*Wait*, give them time. For eight or ten days after the battle, I still said wait. Many of the wounds were destructive in their char-

acter, and the knife was the only remedy; still I begged them to wait; because not a single case had yet recovered from the shock, or passed the irritative stage which followed. The pulse was rapid and feverish; the face flushed; the wound angry, and discharging a bloody serous fluid; the immediate and adjacent parts to the injury were sensative to the touch, and the whole system controlled by it, and morbidly irritable. I was winning no enviable reputation fast; and yet, knowing this, I begged them to still wait. On the 2nd Monday following the Sunday's fight, four amputations, one of the thigh, one of the leg; two of the arm were performed in a hospital, under the control of two surgeons from the East. On the next day, there were *three* funerals, and on Wednesday *one*. The four cases *died*. The surgeons were alarmed, as they had a right to be; and again I said *wait*, so far as the *rest* are concerned; and wait they did. There were causes operating on these cases, and against them, that I will briefly narrate. Many of the wounded were stricken down on Sunday, and lay on the field for many hours, until the lost ground was retaken. They were piled into ambulances, taken to the boat, and shipped to Savanna. Here they had shelter and food; but long before we could secure the comforts which are indispensable to the *amputating* room, the first *chance* had passed by, and the only hope was to await the second. From the 12th to the 14th day, I commenced work; wine, tonics, and good food had been doing their work, silently but surely; and I trust I may say, without egotism, that many a poor but gallant fellow is living to bless that word, *wait*. It was at this time that Dr. TenBrook dropped in, and put his shoulder to the wheel, with an energy and good-will that lifted *me* out of the slough of despond, into which I was fast drifting, together with a couple of hospital's full of wounded. There were not many operations during his stay; but they were mainly of a character calculated to *illustrate* the subject in hand. There were some amputations of the arm, fore-arm, thigh, and leg. The patients, with but a single exception, had not suffered by the delay, and with that exception, they all recovered from the operation. There was a class of cases of greater interest, from

the fact that the injuries primarily were such as to justify amputation; and had they been met at the proper time, with ordinary facilities, even the *conservative* would have been inclined to remove the injured limb. As it was, they slipped through the hands of the surgeon, until they were seen with a view to the performance of an operation, which would save the limb without increasing the risk to the patient's life. With Dr. TenBrook the following operations were performed:—

Lieut. S., gunshot wound, fracturing the *tibia* for 5½ or 6 inches, breaking it into fragments. Twice had a *brace* of *Brigade*-Surgeons met to cut it off, and twice did I enter a protest; the second time, in a very unmistakable manner. The time was not yet for operating, and amputation was *not* the *operation*. After extension was made sufficient to adjust the broken, but not comminuted *fibula*, and allowing time sufficient to allay the local and general irritability, an operation was performed, by which the removal of all the fragments of bone was effected, and the ends of the upper and lower fragments sawed off; under the influence of chloroform he bore the operation well. A simple fracture-box was applied, which allowed complete dressings; after a few weeks, he left for home, with a certain prospect of recovery, with a good, reliable, and useful leg.

J. V. H., a private, was injured by a rifle ball, which shattered the *ulna*, for several inches just below the elbow-joint. The suppuration stage was fully established; his appetite good; and his spirits rather above par. It was one of those cases which might have been operated on a week previous, and which would not have suffered from a few days' delay. In company with Dr. TenBrook, we witnessed the operation, as performed by Dr. ———, the surgeon-general from Wisconsin. The shattered fragments were removed; the ends of the shaft above and below clipped off; and the wound closed. In this case the capsular ligiment was uninjured, and the integrity of the joint undisturbed. The recovery was rapid and complete. There were several cases similar to these, which Dr. TenBrook can give you in detail; and among them all, I do not know of a single case that terminated unfavorably.

During the week following the departure of Dr. T., I was visited by Prof. JOHNSON, of Chicago, Lind University. Time had settled the fate and determined the character of many of the surgical cases in the hospitals, and as the weather was propitious, and all things forward, we put in a week of honest, earnest, and successful labor. Many important operations were performed, carrying the knife and saw through almost the entire range of military surgery. The amputations were few, and bore a small proportion to the aggregate. The question as to the advantages of the circular over the flap operation was fully discussed, and *specimens* of both exhibited; and notwithstanding Prof. JOHNSON is high authority with me, still I will have to see better *recoveries* and neater *stumps* than I have yet, ere I give up the neat, safe, and reliable stump, resulting from the circular operation. There were three resections of the humerus, for injuries to the shoulder-joint; all did well up to the time of my departure, and each would have justified *amputation* on the field. I might go on *ad infinitum*, but I hope, at some future day, not far distant, to present you with a paper on the subject of military surgery, differing I trust from a hastily written letter. I have many *notes*, some I hope of value; but I wish them, even in a new and more carefully prepared dress, to go into the esculapian crucible, before I print them. Some of the ideas deduced from experience will not accord with the surgery of the wars of Napoleon or the Crimea. There is too much surgery practiced, such as it is, and too many mutilations are justified by recognized authority. The surgical history of the army from the North-west is being, or will be, written; and the writer has a splendid theme to urge on his pen. It is to be hoped that the historian will be just and fearless, in the performance of his duty—not his task; and that the Department will never again commit the gross errors which have marked the campaign of 1861-2. More anon.

I am, my dear Dr., with high regard, yours, etc.

HENRY W. DAVIS.

Army Correspondence.

MEMPHIS, TENN., *Aug.* 9, 1862.

MESSRS EDITORS:—Having been more or less sick with the effects of climate and soldier's life, for many weeks I have neglected you, as well as my other correspondents. Now, however, I am nearly recovered, and resume my pen, my catlin, and all my hospital implements and duties.

The military position and quiescence of the army does not favor the presentation of large surgical lists, at the present time, though the skirmishes give a continual sprinkling of cases, and now and then, a shot through the boiler of a gunboat results in a fearful catalogue of burns. A case of wounded intestine was very successfully treated by my assistant-surgeon, Dr. J. M. WOODWORTH, of Chicago. The patient received a stab with a knife, in the left iliac region, letting out the small intestines, so that they hung down externally, and were more or less covered with dirt in the scuffle. The knife, in some unexplained way, made three cuts into the intestine. Dr. WOODWORTH very carefully cleaned the viscus, and then folding in the cut edges, so as to bring the peritoneal surfaces in contact, closed the orifices with silk suture. The gut was then returned, and the external opening also closed with five stitches. The patient was put to bed, or rather to blanket, for beds are *non sunt* in the army, and a starvation regimen enforced, for ten days. The result was that he recovered, without the shadow of a bad symptom. At present, there is no tenderness on pressure, but there is an appearance as though the locality of the wound was about to become the seat of a hernia.

I mentioned, in a former letter, that at one of the fights in front of Corinth, I introduced, among the surgeons present, the idea of primary resection, hoping thereby to diminish the fearful mortality which follows military amputations. The circumstances were favorable, as the locality was elevated and healthy, and the patients were not obliged to be carried about on marches. The result went to show that no change of man-

agement can divest the cases of femurs shattered by musket balls, of fearful peril. At that battle, we resected the shattered ends of the shaft of the femur in two cases, and amputated the thigh in a third. In the superior extremity we resected two elbows and one shoulder, and amputated one forearm, making in all seven cases. The result was that all the three cases, involving the thigh, died, both the amputations and the resections terminating alike unfavorably; while in the superior extremity, the cases of amputation and the resection all lived, and did extremely well.

I am informed that Congress has passed a law, cutting down the perquisites of commissioned officers, in such a manner as to diminish the compensation of a surgeon by about three hundred dollars a-year. I have not been able to get a copy of the act, but I am informed that the diminution is made in the allowance for horses, in the following manner. Every mounted officer is entitled to have a certain number of horses, according to his rank, surgeons being supposed to have four, in time of war, and a certain allowance of feed, valued at eight dollars a-month, was furnished for each horse. But whenever the officer could dispense with a portion of the horses, without detriment to the service, he was allowed to do so, and to draw a commutation for the unused feed, in money. By many years usage in the regular army, surgeons and others were accustomed to keep only one or two horses, and draw the commutation for the others, as part of their pay. This commutation is now cut off. I fear the effect of the change will be still further to diminish the supply of medical officers, of whom the number is already very scanty.

The health of the army is excellent, the sickness being much less now than during the spring months. The number of cases under my treatment, during the last four months, is nearly as follows:

April,	388
May,	337
June,	278
July,	163
Total,	1171

The mortality, during this time, has been a little less than 1 per cent. of the cases, exclusive of those killed in battle.

As the season advances, the form of the sickness changes somewhat, though the cause seems to be the same, viz.: portal congestion. There is a curious relationship observable between the fevers and the class of diarrhœas. When the portal system is congested, if the patient has diarrhœa he frequently escapes fever, but if the bowels are not loose, fever results; hence the prevalence of diarrhœa is in inverse ratio to the fevers, as is shown by the following table:

	April,	May,	June,	July.
Fevers,	45	58	111	49
Diarrhœas,	153	88	65	44

The fevers have steadily increased, and the diarrhœas diminished until July. In the latter month, all sorts of disease, except the chronic form, underwent a marked diminution. Most of the cases of fever are remittent, though the intermittent and continuous forms are common. The typhoid fever, such as we see in Chicago, scarcely exists here at all, although there is a fictitious resemblance to it produced by the frequent occurrence of mild diarrhœa in connection with remittent fever. The diarrhœa, in such circumstances, is not dangerous, and evidently serves to mitigate the severity of the fever, so that I commonly prefer not to interfere with it very much, but let it run until I have removed the portal congestion which caused it.

Notwithstanding the supposed exemption of the negroes from the climatic diseases of the South, I am constantly seeing cases of the same fevers and diarrhœas among them, which prevail among the soldiers, and apparently of equal severity and frequency. I am inclined to think that their power of resisting Southern climatic influences is greatly overestimated, though there is doubtless something to justify the common opinion on the subject. It is positively certain, however, that they cannot endure with impunity exposure to strong malarious influences, for they are subject to all the diseases which such influences produce.

A slight examination of the operations of the medical depart-

ment of the army, throws light on the enormous waste of our troops; a waste which is so great that the regiments now here cannot bring more than half their original strength to battle.

1st. There was little or no medical inspection of the recruits at enlistment. Officers, whose commissions depended on filling up their companies, cared little for the quality of the men, if they only got the number. To them the medical examination only appeared as a terrible spectre, depriving them of their recruits, and dissipating their hopes of office. Hence, in most cases, no inspection was had at all, and in others, only an inspectoral farce was enacted. For instance, when I was post-surgeon, at Camp Douglas, I received an order to repair to head-quarters, to examine a lot of recruits. Now, the army regulations require that each recruit shall be stripped naked, and inspected separately, over his whole person. Judge of my astonishment, therefore, when I was shown out upon the parade ground, in a cold winter day, with four inches of snow on the ground, and a whole regiment was paraded before me, which I was ordered to examine forthwith. I informed my superior officers, that no such inspection could be made there, as the regulations required, and that all I could do would be to pass along the lines, and pick out such obvious cases of blindness, maiming, etc., as could be seen at a glance. Accordingly, I went down the lines with my assistant, and removed six or eight bad cases. So far as I know, those recruits never had any other examination. Of course, vast numbers of men went to the field who broke down on the first hard service, and either were discharged or sent to the hospital.

2d. All the officers, both medical and others, were inexperienced in the economizing of forces, and when a man became sick, and remained so for a few weeks, they did not bear in mind the prospect of future recovery, but applied for his discharge. The higher officers, with equal prodigality, granted the request. Hence, many men were discharged for sickness, who were merely undergoing a rather protracted acclimation, and who, were they now in service, would be among the most hardy of the soldiers.

Large numbers of the sick were sent back to general hospitals in St. Louis, Mound City, Paducah, and elsewhere, who should have been kept for recovery in the regimental hospitals. The effect was just this: the surgeons in general hospitals do not feel so sensibly the necessity of keeping up the numbers of the various corps, as do field-surgeons, who are constantly associated with the regimental officers; therefore neglecting the economy of force, they seek to relieve their hospitals from overcrowding, and themselves from overwork, by procuring great numbers of discharges, and furloughs for such patients as are able to travel. Hence, vast numbers of men, who left the army with diseases of a temporary character, have never returned; and often the captains are surprised to learn that they have been discharged, when six weeks rest and treatment should have returned them to duty. The discharged men, of course, are lost; and the looseness and negligence in compelling return after furlough, renders a leave of absence as bad as a death, so far as the army is concerned.

These various causes, combined with battle and permanent sickness, have reduced the army to its present weakness. Some regiments cannot parade over 250 men under arms, and very few can present 700. The remainder, however, are hardy, well acclimated, and the officers have profited by their experience. Hereafter, the wastage by unnecessary discharges, will be very slight, and that by sickness only moderate. The actual number of deaths by sickness in the field-service of this army, has been very small; and we think that perhaps we should have actually saved many lives, had we kept more of the sick in the fresh air of the hills, and sent fewer back for the comforts of large hospitals.

Dr. JEWELL, of Attila, Ill., Demonstrator elect of Lind University, has left the army, to make preparations for removal to Chicago. He served with great credit to himself and advantage to his regiment. Dr. WOODWORTH, of Chicago, is my assistant-surgeon, and is with me at Memphis. Dr. TAYLOR, of Galesburg, is either with the army near Corinth, or else with Gen. Buell. Dr. WARDNER, of Chicago, is division-surgeon in

Gen. Davis' division, I think. I do not know his present locality, but probably somewhere between here and Chattanooga. Dr. REILLY, lately your associate editor, is, I think, with his regiment, the 45th Ill. Infantry.

A very clear illustration of the causes of intermittent fevers occurred in my regiment, at this place. Our camp here is on a dry, healthy bluff, nearly 100 feet above the river. Company A. of Chicago Light Artillery, has been for many months, the most healthy company of the regiment, the sick list seldom being over four, and those very trivial cases. Since arriving at Memphis, however, they were, after a time, suddenly attacked with a little epidemic of ague, 10 or 15 cases occurring at once. The officers suspected that the fault was in a spring from which they drew water, especially as the "Secesh," who encamped here before us, held the same spring to be so unhealthy that they put a guard over it, to prevent their men from using it. The spring, however, did not seem to me to be the cause, as it appeared to be copious, clear, and entirely free from organic matter. On a little further inspection of the ground, I found that within ten rods of the edge of the area occupied by that battery, there was a shallow depression in the soil of about one acre in extent, which a week previous, had contained stagnant rain water, being in fact a little temporary marsh. This had dried up in the hot sun, and the onset of the intermittent was simultaneous with the drying of the pool. As soon as the ground was well dried the epidemic ceased. I cautioned the officers, that in the future it would be necessary either to remove the camp, or provide for drainage of the ground.

Sunstroke has been very rare among us; and all of our diseases have been of a mild type. On the whole, we have every reason to congratulate ourselves that this climate has been very far from deadly to our armies. Yours truly,

E. ANDREWS.

Selections.

THE CHLORINE AND MILK TREATMENT OF SCARLET FEVER AND THE TYPHOID FEVERS.

By CONWAY T. EDWARDS, M.R.C.S.E.

The symptoms, development, and progress of scarlet fever and fever of the typhoid type, have been so continually brought under public notice, and so ably treated in every work on the practice of medicine, that it were superfluous to enter upon a consideration of them in this paper, and would not assist in any way the object I have in view, which is, to point out the beneficial influences which a chlorine and chloroform treatment, with a full diet of milk, exercise over these diseases.

It must not be understood that, in advancing these remedies to so prominent a position in the foreground, they are to be regarded in the light of specifics, or as interfering with the antiphlogistic treatment and regimen which the medical practitioner finds it necessary to adopt during the first stages of febrile disease; but, as possessing the important quality in themselves of at once destroying the putrid effluvia generated by, and thrown of from, the secreting surfaces of the stomach, alimentary canal, kidneys, lungs, and skin, and endowing the system with power to bear the progress of the disease. These effluvia, so poisonous in themselves, on account of the large proportion of sulphuretted hydrogen which they contain, contaminate the air of the sick chamber, oppress nurses and attendants, and are most injurious to the patient. How important, then, must it be to remove them! This chlorine effects; its influence is no question of lengthened time; it commences at once, and continues during the whole course of its exhibition.

Now, as regards "a full diet of milk." From the very commencement of a fever, there is a very great loathing to all kinds of nourishment; the bare suggestion of food creates a shudder, which expresses, more than words can do, how repugnant the idea is to the feelings.

Adopt the once received and re-entertained Brunonian system; give *ab initio* nourishment and tonic medicines, and as the disease advances, with increase of weakness, and ever progressing waste of solids and fluids of the body, perhaps the real nature of the attack may be suddenly developed and resist every remedial means to overcome it. In no disease is the truth of

this more apparent than in typhoid pneumonia. Take a false view of the real nature of the attack; see in the fever everything save the current of inflammation which runs beneath it; suddenly the real truth will be developed, and the engorgement of the lungs is but the precursor of the fatal termination which will rapidly ensue. All antiphlogistic treatment would be useless; calomel and opium and antimony have no time to act, and the patient dies.

But the hourly increasing weakness and waste of the system are very formidable symptoms during the course of fever; are these to be ignored, and no attempt be made to meet them? Had we but a life-sustaining diet, simple in itself, and not only agreeable to the patient, but eagerly accepted by him—a diet which in itself should contain meat and drink of the most unstimulating nature—how great a boon it would be to the sufferer!

What writes Dr. Thielman, the Russian physician, in his treatise on Fevers? "He had never seen delirium occur during the progress of *any* fever, under the influence of a full diet of milk, as *after broth!* It is not only well borne, but is easily assimilated, and endues the system with *power to resist* disease." This is exactly what is wanted. How does it agree with our own experience? Yet, without going quite so far, if it only remained on the stomach with ease; relieved the thirst; sustained the nervous energy, thereby giving power to resist the disease,—important results would accrue from it.

It were needless here to enter upon the analysis of milk, or to show forth the reasons why it is the most life-sustaining of nourishments.

It is objected, that milk is indigestible, and therefore not fitted for a weak stomach; that the gastric secretion (analogous to the rennet of the calf) at once separates the solid from the fluid part, the former coming away, especially in children, untouched by the digestive organs. The theory looks well upon paper, but will not bear the test of experience. Curd itself is eaten with pleasure and impunity, not only in the delicious junket, as made to such perfection in Cornwall and Devonshire, but in the more homely form of closely-compressed curd, floating in its whey. Few beverages are more grateful to the palate, more refreshing, and more thirst-allaying than whey: it is the pleasantest and most cooling of summer drinks, and its effects are much more permanent than even water itself.

In giving milk to the fevered system you have at once this most refreshing fluid generated in the stomach, and an unirrit-

ating solid formed, which in a greater or lesser degree repairs the waste of the living substance. The gastric juice converts the milk into what is popularly termed "curd and whey."

Now, as to the growth-giving and other nourishing qualities of milk, daily experience proves and shows, in the firm and excellently tinted skin of healthy infants entirely brought up, for seven or eight months, upon milk, its potent and genial influence. The mother, being in good health, supplies a nourishment which no science can equal and no art compound. It is nourishment particularly free from all irritating, clogging, and fever making principle. It is so curiously and wonderfully compounded, that up to a certain point the infant retains it; but beyond that it is rejected, sometimes from over-repletion, on account of its excellent nature, and sometimes from the eagerness with which it is taken.

In treating of milk as a diet especially for invalids, it must be understood that healthy, unadulterated milk is alluded to. This of course is very difficult to be obtained in large towns; almost impossible in the metropolis. In very circumscribed spots, in the latter are assemblages of stalls, capable of holding several hundreds of cows. The impure condition of the heated air is patent to all. It cannot be other than unwholesome. Seldom do the animals scent the fresh air, feel the sunshine, tread the green grass, or take any exercise! Their daily life is spent in eating the most milk-giving, and of course heat-producing, food. In summer, perhaps, long grass, vetches, pea-halms, (cut and collected, it may be, for a day or two before use,) are given. In very limited space do they wear away their life in producing milk. The consequences need not be dilated on. The animals are mostly in a fevered state, many are directly diseased, and all produce a milk which (without inquiring too curiously into its composition when retailed to the public) is not healthy. This is not the milk to be selected for a fevered patient, and yet, boiled, it is preferable to a farinaceous or animal soup diet.

We will now turn to the bearing of what has been advanced on scarlet and other fevers.

About the year 1844, scarlet fever raged with some violence in the district where I had practised for many years. At an early period of the attack, typhoid symptoms developed themselves. The dryness of the tongue and fauces, the dark secretion on the gums, putrescent fetor of the breath and from the skin, renal and alvine secretions, attested the dangerous nature of the disease. In Bath, a very extrordinary symptom fre-

quently developed itself, and seemed to be the sure precursor of death. This was a rigidity of the sterno-cleido-mastoidel-muscles, of a nature so great that they felt like rolls of wood beneath the touch; the smaller muscles soon put on the same action, and the sufferer seemed in dying to be strangled. In the country district this formidable complication did not occur; but one family, fearful that an only daughter might take the disease, left for Clifton. Before six weeks had elapsed, this child was seized with the complaint, and died.

In the early days of the epidemic, several fatal cases occurred in my practice, and something akin to a feeling of regret came over me when summoned to any new case. But an accident opened up a mode of treatment, which soon changed the fatal tendency of the attack. Two children, living at the National School, Bathford, took the complaint. They were relatives of one of the nurses at the Bath Hospital, and she came over to nurse them. The symptoms in one child were urgent from the beginning, and both head and chest suffered severely; the throat was studded with sloughing spots, and greatly swollen; the breath and all the secretions gave out the putrefactive fetor. The cases seemed to be of the worst kind. About the fifth day the nurse said: "She has been better, Sir, since she used that last gargle; the great restlessness is gone, the rambling talk has ceased, and all putrid smell from the breath and evacuations has left. I believe," she continued, "it was the gargle which did it, for she swallowed the first dose." This gargle was composed of a solution of the chloride of lime, alum, ustum, compound tincture of iodine, water, and a little tincture of capsicum.

On examining the throat, I found the nurse's statement to be correct as to the breath; and not only had this beneficial change taken place, but the sloughing surfaces were assuming a brighter red, the sloughs were evidently contracting or curling up, and the tongue and gums were becoming moist. There was also a quietude about the look and features, which indicated that the nervous irritability was passing away. The nurse was so positive as to the cause of this favorable change, she was directed to add a drachm of the solution of the chloride of lime to two pints of tepid water, with a little lemon-juice and sugar, and give it as diet-drink to the patient. This, with a gruel and sago diet, and ammoniated effervescent mixture, and an occasional dose of rhubarb and grey-powder and James' powder, were given, until it was safe to administer tonics and good diet. The disease spreading, the same diet-drink was adopted, and the use of chlo-

rine extended by directing the body to be sponged with tepid water containing it, twice a day. After the adoption of this treatment no fatal case occurred.

At the termination of the epidemic, I read a paper on the subject before the Bath and Bristol branch of the British Medical Association, being justified in so doing from the numerous cases which terminated successfully. One or two of the members expressed themselves dubious respecting the effects produced by such means, when the physician who had permitted the nurse to attend on her relatives rose and said that "he could vouch for the accuracy of the writer's statements, for his nurse had narrated to him the results of the treatment." This paper I subsequently published. A week after its publication I was agreeably surprised at receiving a polite note from Mr. Martin Ricketts, of Droitwich, (a total stranger to me,) stating that "he had perused the paper with great interest and pleasure; that he could confirm all that I had written on the subject of the good effects of chlorine in scarlet fever; and that, strange to relate, a similar accident to a child using a chlorine gargle had led to the adoption of chlorine in his practice; lately, however, he had used a preparation made by the Apothecaries' Company at Liverpool, and termed *chloriform*, which appeared to him to possess all the antiseptic powers of chlorine, with a sedative influence peculiarly its own. The dose was from five to thirty minims. He requested my acceptance of a small quantity, regretting at the same time that it was so expensive." In this preparation lay hidden a grand secret—a glorious gem, sparkling, and beckoning to any scientific mind to free it from its prison-house. Its advances were unheeded, until Dr. Simpson first recognized in its component parts something more than the composition of either—a something which possessed all the anæsthetic properties of that fluid without its nauseous ones. What is its position now? It is first on the list of alleviators of human suffering; and the discovery of it should have won for its discoverer a world-wide testimonial. I soon recognized the preparation, made public towards the termination of 1844, to be the same as that sent me by Mr. Ricketts; and, like other medical men, freely experimentalized with it on animals, insects, etc., and then on our suffering fellow-creatures.

On the rebreaking-out of scarlet fever and typhoid epidemic of the usual form, I prescribed chloroform; but as it did not remove the effluvia so effectually as chlorine I administered the latter in combination with it. It was, however, observed that after every dose of chloroform a great calmness and inclination

to sleep were produced, unattended with any adverse cerebral symptoms.

The beneficial effects which the use of these remedial means produced in scarlet fever, likewise resulted from their exhibition in typhoid fever; so that I had every reason to be satisfied with the treatment.

But the power of preparations containing chlorine over infectious fevers was known long before the disinfectant principle was discovered to exist in that gas. The celebrated Dr. Parry, of Bath, was an advocate for the use of muriatic acid, both externally and internally, in fevers; but the beneficial influence of that medicine was not referred to the chlorine it contained. That acid is now termed hydrochloric, from its chemical constituents; and in the present day, when the chlorate of potass is freely used in malignant fevers, sore-throats, etc., it is not frequently you find it acknowledged that to the liberated chlorine are the good results attributed. Read any work on fevers, from the school book of the day to the popular *brochure* of the minute, and see what little stress is laid on the value of chlorine as an important curative agent.

Since my residence in London, numerous cases of scarlet fever have come under my care; and, with every disadvantage, in many instances, of impure air, small, ill-ventilated rooms, indifferent diet and nursing, two cases only terminated fatally, and these were seen some days after the disease had first appeared.

It must not be imagined from what has been advanced that these fevers were treated solely with chlorine, chloroform, and milk. The antiphlogistic system was invariably practiced at the commencement of the attack, involving sometimes abstraction of blood, counter-irritation, chloride of mercury, potassio-tartrate of antimony, and purgatives, with gargles of capsicum, alum, iodine, and chloride of lime solution. It is after the first two or three days of this treatment that the internal and external use of chlorine and chloroform is so beneficial, and the milk diet can be depended on—or, if the stomach can bear it, gruel made as thick as good cream, with two-thirds milk; and when we consider what a state of irritation the mucous lining of the primæ viæ must be in, and how certain glandular structures are affected in all typhoid fevers, such a diet cannot but prove most soothing. In conjunction with these, sponging the body twice a day with tepid chlorinated water, change of linen and of bed (where two beds can be placed in the room), will contribute greatly to the general welfare and convalescence of the patient; whilst wine, ale, soups, and jellies can be deferred until the ter-

mination of the complaint approaches or urgent symptoms demand them.

I have now brought my observations to a conclusion, with the hope that some other practitioner may be induced to publish his experience of chlorine and chloroform in fevers.—*London Lancet.*

Brompton-row, June, 1862.

EPILEPSY.

AFTER THE FRENCH OF HERPIN.

By EDWARD SUTTON SMITH, M.D.

Art. II. Continued from page 438.

Interval between Attacks.—When one does not follow step by step the succession of epileptic attacks, they will be struck by their apparent irregularity; but if a certain lapse of time be considered as comprising a great number of acces, and this time is divided into equal periods; or, which amounts to the same thing, if you will take in fractions the daily minimum of the acces during irregular periods—for instance, during such and such treatment—it will be found that the return of the attacks is conformable, at least during a certain time, to a kind of regular law that was not at first suspected.

When we examine with attention a long series of the dates of acces, and keep account of the order by paroxysms when they occur, the intervention of certain accidental attacks, or the non-arrival of the ordinary return, we shall arrive at the conclusion that, though without the regularity of intermittent fevers, the crises of epilepsy are much less abnormal in their appearance than has been generally supposed, and that they are really regular, which distinguishes them from all other nervous crises.

In incurable cases, sooner or later the return of the acces is manifested by an acceleration, which is a bad sign. This gradual acceleration, generally slow, though sometimes rapid, is the indication of the course of the disease.

I have encountered all degrees of frequence; from more than one hundred a day, down to a single attack every four or five years. The most numerous category is that where patients have had from one to six attacks a week. In hospitals, in consequence of there being no infants, monthly attacks are usually those which are reported.

Acces return and follow two distinct courses; either by isolated acces, or by paroxysms; sometimes these two kinds com-

bine, and at other times change from one to the other. The first course is three times as frequent as the latter.

Generally, the paroxysms come on about every month, lasting from one to three days, and are composed of from one to six acces.

Accidental or very intense paroxysms sometimes cause death.

Diurnal acces are sometimes as frequent as nocturnal, if we take for a day the time that elapses between the rising and retiring of the patient.

The lighter the crises are, the more apt they will be to appear during the day.

Nocturnal attacks are generally more intense, and indicate a higher degree of the malady.

In general, the interval between the attacks grows shorter as the disease advances.

Nature of Acces—Section First—Type of an Acces of Epilepsy.—An individual, apparently in perfect health, without any premonition, gives a cry, and suddenly falls, deprived of intelligence. At once tonic convulsions commence at some point of the locomotive system, and ultimately extend to all the voluntary muscles. The contraction, in proportion as it is more energetic in the muscles of one side of the body than in those of the other—in the extensors than in the flexors, in the elevators than in the depressors, in the constrictors than in the dilators—induces such a variety in the fixed attitude of the members of the trunk, head, or the expression of the countenance. From this immobility of the muscles and occlusion of the glottis results, as has been well shown by Van Swieten* and M. Beau, the suspension of respiration, then all the signs of asphyxia; we will add, as a natural consequence, the accumulation of saliva in the mouth, arising from the compression of the salivary glands.

This period is called *tetanic.*

After this first division, to the tonic phenomena are added, first, partial, then general, clonic convulsions; which, according to their predominance in such or such muscles, or such and such regions, produce the most irregular movements and hideous expressions of the face.

Respiration, incompletely re-established by these movements, is performed with considerable noise; you hear the noise produced by the passage of the air through the mucus or saliva, which soon appears upon the lips in the shape of foam. This foam is sometimes reddened by the blood that arises from

* Commentaria in H. Boerhaavii Aphorismos, Parisiis, 1758, tome III., p. 398.

the biting of the tongue. The urine passes involuntarily, moistening the garments of the patient.

This the second phase, that of the *shocks*.

The *rale* and the rigidity evidently persist after the clonic convulsions, then diminish, and finally cease more or less rapidly during the third period. This latter is marked by muscular relaxation, coma, and stertorous breathing. It is the perfect image of that condition which is known by the name of *cerebral commotion*. The loss of intelligence continues; the pupils are greatly dilated; respiration is low, profound and stertorous; the face is less colored; the pulse, from having been rapid during the preceding periods, now gradually lessens.

This is the snoring period, or *comatose state*.

The patient wakes up as if from a prolonged sleep, astonished, exhausted, terribly fatigued, and with a pain in the head. Has no recollection whatever of the painful scene that has just passed. Can articulate a few words, but soon falls into a sleep that is really reparative.

This fourth period is that of *return to consciousness*.

The duration of the first period is very short—about a quarter of a minute; each of the succeeding ones is about four times as long as that which immediately precedes it.

Such is the type of a complete attack of epilepsy; such is the result according to my idea, of the numerous descriptions given by authors of the comparison of a number of facts; and finally, of my own observation. But this type, like all others, is in reality but a generalization, and we must not expect to find it exactly reproduced in the majority of epileptic cases. The different degrees of intensity, and the greater or less duration of the acces, present numerous varieties; more numerous than any physician would suppose, who had not specially studied this disease.

The study of all these varieties has never been methodically pursued, and this subject, alone all-important from a diagnostic point of view, we shall undertake, though without the pretension of calling it complete, for, to accomplish that one should live in and epileptic hospital.

Section Second—Prodromes.—The prodromes are divided into *remote* and *near;* in this latter category are included those sensorial or convulsive manifestations that from their nature are intimately connected with an attack properly so called.

We have encountered prodromes only in nine individuals out of thirty-five; that is, in scarcely a quarter of the cases. Those observed were of a very variable nature.

Change of character: irritability, turbulence, violence, sadness, agitation, struggle against the attack.

Vertigoes.

Headache, congestion of the head, somnolence, general fatigue.

Nervous trembling.

Skin burning; sensation of cold; chills; somtimes paleness.

Nausea.

Diarrhœa; cholic, without evacuations.

But these prodromes as signs are so far from having that value that has been attributed to them. If the patient is watched a long time, and the precursory signs noted with care, it will be found that the prodromes are often wanting, and that even their appearance is not always followed by an attack.

Section Third—The Commencement of an Attack, and the Aura Epileptica.—The cases in which we can follow an attack of epilepsy from its origin are very rare, particularly in private practice. Even when and acces has taken place in the presence of a physician (unless he has been forewarned) who is both attentive and placed in favorable circumstances, it is difficult to observe from its very commencement. But, happily, there are cases where the phenomena do not follow each other so rapidly; where it is possible to study the initial steps of the attack from the information furnished either by the patient or his friends.

The first attack that took place in Observation No. 2, commenced with a cramp or contraction with flexion of the two last fingers of the left hand; she then gave utterence to two or three screams, while her hand closed, her forearm bent, and her whole arm was raised in such a manner as to carry the hand towards the shoulder; the succeeding contractions were very painful; the head turned around; it seemed to the patient that the same sensation was about to pervade the whole body; consciousness was lost; and finally the young girl fell upon the floor, and had a well-marked attack. Same state of things took place in the next acces. All these details are authentic, having been given me by the girl herself, without my directing her by questions; her friends, intelligent persons, confirmed the facts.

Observation No. 9—(*Third Series.*)—Miss W., of Brooklyn. Disease first manifested itself in 1859; interval between attacks about 14 days; always commence with cramps in the left foot, which gradually extend to the trunk, till the whole body is convulsed; has had as many as eight attacks in twelve hours. Came under treatment the 16th March, 1862; has never had an attack since.

We shall find a similar case in observation No. 38. Painful cramp in the great-toe of one foot, which produced groans, and sometimes screams; the toes had a tending to turn up; the painful sensation, accompanied with a sense of fulness, gradually gained the limb, the thigh, the stomach, the chest, passed into the fingers of the hand; some of them turned, remounted to the shoulder, the side of the neck, the ears, the face, and terminated at the top of the head; then the patient lost her sight, the head turned upon its axis, or backward; consciousness vanished; the members straightened out and stiffened; the close of the attack was quite short, and marked by some shocks of the head.

As regards the fall, the duration of the *debut* always allowed this second young lady to sit down and sustain herself, otherwise she would certainly have fallen. Observe that, in this last case, the cramp sometimes commenced in the leg, the thigh, the fingers, etc., and sometimes passed from one side to the other, but always advancing from below upward on the same side. The details of this second case were as correct as those of the first. Having been myself a witness to one of these cases, I can bear witness to their minute exactness.

I shall here cite Bonet*—interesting from the double point of view of the influence of the ligature, and the preservation of intelligence during the attacks.

"Many sympathetic cases of epilepsy have been cited, dating their origin from many different parts of the body, but none have ever been published where the affection commenced in the inguinal region. I observed a case of this kind in 1656, in the person of M. Rosselet, of Neufchatel, in Switzerland. He was a man 50 years of age, red hair, a *bon vivant*, and somewhat addicted to the society of the fair sex during his youth, as he himself said. At intervals he felt in the left groin a swelling like a small bubo; from thence a crawling sensation passed slowly down the thigh to the very sole of the foot. When it had arrived there, a kind of wind or vapor (*vapor quidam quæris aura*) mounted rapidly from this point to the brain, though it only reached the left side, as could be seen from the fact that the convulsions only affected the left side of the body and face, which was deformed by frequent grimaces. The patient lost neither speech nor consciousness, though this latter was altered, the vapor also reaching the nerves of the tongue. He said hesitatingly to me, in the midst a paroxysm, '*See, see, how this terrible evil torments me!*' He experienced, at the same time, shocks in the arms and legs; this condition of things lasted

* Sepulchrum, folio 1700, t. I., sec. 12.

about five minutes." The patient, to whom Bonet proposed the application of the actual cautery at the point of departure and throughout the length of the course of *the aura*, refused in the most absolute manner. "He consented, however, to employ a ligature above or below the knee, so as to intercept the course of *the aura.* The moment that this latter commenced, and the patient felt the itching and tumefaction of the groin, he drew tightly around his leg a garter that always hung on his bed. He always succeeded in arresting the paroxysm, and gave up all other remedies. One evening, while dining with his wife and children, who had pushed the table against his bed, he felt the vapor coming on; the obstacles that prevented his taking his garter could not be removed with sufficient celerity; the vapor became all the more violent from having been so long compressed, and mounted with such fury that this eminent man perished in the paroxysm."

The following is the opinion of Esquirol on the subject: "In a great number of cases, epileptics, before losing their consciousness, feel a convulsive movement, a kind of pain; they experience a chil, a vapor (aura epileptica) on the head, the face, one of the arms, the hands, the thighs, the legs, the toes; these different feelings are propagated the whole length of the limbs, towards the head, and when this *vapor* arrives at the head the patient loses consciousness; then the convulsions are sometimes general, sometimes partial, and sometimes limited to the limb that was primarily affected."

As we advance in the seventeenth and eighteenth centuries, we find the cold vapor less and less frequently mentioned; it is replaced by spasms, cramps, convulsions, and shocks; and finally, in our time, criticism, the child of doubt, has denied the phenomena altogether.

From a close analysis of the most complete and recent facts, it seems ligitimate to conclude that the prodrome described under the name of *aura epileptica* is nothing more than the first convulsive manifestation of the attack, taking place in a part of the system more or less removed from the brain.

To give a definite *resume* of the subject—

The functional alteration of the nervous centres, which constitutes an attack of epilepsy, usually invades those organs from the superior part of the cerebro-spinal axis to its inferior portion; but it may also commence at various points throughout the length of this system, as well as in its inferior portion. This last form is the severest of all.

I am inclined to think that the cry, which is the second phe-

nomenon at the commencement of an attack, *is an expression both of surprise and of the pain caused by the convulsion. The cry is met with in about half of those epileptics that have complete attacks, but it is only constant and reliable in about a quarter of the cases. In the case of children it is often replaced by tears.*

This symptom is never connected with vertigoes or incomplete acces. Generally speaking, the most violent attacks are those that are preceded by the cry or scream.

The fall is the third symptom of an attack; it is much more frequent than the cry; without, however, being constant, and may be so violent as to cause death.

When the period of cramp or partial initial convulsions is prolonged, the acces is more generally incomplete, or very brief.

One strong scream, on the contrary, indicates the commencement of a violent attack.

The more sudden the fall, generally the shorter the acces.

In a word, *the longer the debut, the less violent the crisis; the more sudden, the more intense the acces.*

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ON THE TREATMENT OF SUSPENDED ANIMATION UNDER THE INFLUENCE OF CHLOROFORM.

By WILLIAM MARCET, M.D., F.R.S., Assistant-Physician to the Westminster Hospital, etc., etc.

In the *Medical Times and Gazette*, for July 20, I offered a few remarks on the phenomena attending the accumulation of vapors of chloroform in the blood, and insisted on the importance of watching the state of the respiration as well as that of the pulse during the exhibition of this anæsthetic agent. The number for October 28, of the same periodical, containing two new cases of death from chloroform, I may be perhaps allowed to return to this subject, my present object being to suggest a mode of treatment in these cases which to my knowledge has not yet been proposed; and considering the failure which has nearly constantly attended every attempt to restore animation suspended by an overdose or under the influence of chloroform, the following suggestions will be most probably of interest, and also, I trust, of practical utility.

It has frequently occurred to me that, in many instances, the final cause of death from chloroform was owing, not only to its anæsthetic properties, but also partly to spasm of the glottis. I do not mean, however, that the passage of the vapor of chlo-

roform through the glottis and larynx has the power of causing an involuntary closure of the glottis; and I cannot agree with Dr. Black, of St. Bartholomew's Hospital, who states:—"Any concentration of the vapor of chloroform which can be breathed is safe; any condition of dilution which causes the patient to cough or to hold his breath is dangerous, and if persevered in for half a minute, may be fatal." I believe a spasmodic closure of the glottis to take place occasionally, from the action of the chloroform which has been absorbed into the blood, and that this obstacle to the admission of air into the lungs, taken in connection with the narcotic or anæsthetic effect of the chloroform circulating in the blood, has been in some, perhaps many, cases the actual cause of death. Should this view be correct, it will follow that if air be allowed to enter the lungs by means of tracheotomy, or by opening the glottis with a trache-tube, or any other operation which will effect the same purpose, life will in such cases be saved.

It may be inferred that spasm of the glottis takes place occasionally under the influence of chloroform.

1st. Because several substances possessing anæsthetic properties are positively known, when present in the blood, to have given rise to closure of the glottis.

2nd. Because the symptoms of death from chloroform are consistent, more or less, with death from sudden asphyxia.

3rd. Because the *post mortem* appearances after death from chloroform may be accounted for by assuming that death has taken place from asphyxia.

In the three following cases, spasmodic closure of the glottis resulted from the presence of alcohol, carconic acid, and sulphuretted hydrogen in the blood, the physiological properties of these three substances being allied, to a certain extent, to those of chloroform; and in two of the instances under our consideration, life was obviously saved by tracheotomy.

A very interesting case is reported in the volume of the Medico-Chirugical *Transactions* for 1837, entitled, "Case of Recovery from the Insensibility of Intoxication by the Performance of Tracheotomy. By George Sampson, Esq." The patient, aged 31, was brought to Mr. Sampson's house in a state of complete insensibility, after drinking freely of beer, and more than a pint of brandy; all voluntary motions had ceased for at least four hours. The stomach-pump being used, drew off between three and four pints of fluid, the greater part of which appeared to consist of brandy. Every means of exciting vomiting was afterwards vainly applied; the man became more

comatose, his countenance turgid, and breathing more and more difficult; the pulse grew fainter, and was at last scarcely perceptible. He was then removed to the Infirmary, and a consultation was held with other medical attendants, who arrived in the course of half an hour; at that time every appearance indicated the rapid approach of death, and there was no ground to justify a reasonable hope of recovery. It occurred to Mr. Sampson, when standing by the patient's bed-side, that the extreme difficulty of respiration was owing to the existance of "collapse of the glottis," and with this view of the case, he strongly urged that a trial should be given to the operation of tracheotomy. The operation was accordingly performed, without loss of time, by Mr. Andrews. The trachea was no sooner opened, than the distension of the veins about the head and neck subsided, the violent efforts of the respiratory muscles ceased, and in about half an hour regular and easy respiration through the wound was freely established. At the same time the pupils became slightly sensible to the stimulus of light, and the pulse returned to the wrist. He continued quiet during the night, but had no return of consciousness till the following morning. The case proceeded very satisfactorily, and the wound being healed in about three weeks, the patient was discharged cured.

This case is particulary interesting, for the analogy between the physiological action of alcohol and chloroform has been quite satisfactory demonstrated by Messrs. Lallemand, Perrin, and Duroy. Like alcohol, chloroform acts first on the brain, then on the spinal system, and finally on the sympathetic; the brain exerts a certain power of concentrating within its tissue both chloroform and alcohol; the period of excitement produced by chloroform, is not unlike that of alcoholic intoxication; and insensibility equally results when a sufficient dose of alcohol or chloroform has penetrated into the circulation.

If alcoholic poisoing is positively shown to have threatening life from asphyxia owing to spasm of the glottis, I see no reason why death from chloroform should not be due occasionally to the same phenomenon.

The two other cases I have to report have come under my own observation. One of them was an instance of secondary asphyxia, from spasm of the glottis, after immersion in the Serpentine during the skating season. The patient, a middle-aged man, had been entirely under water, but on being taken out, respiration returned, and continued comparatively free until placed in a warn bath, when he suddenly exhibited alarming signs of

asphyxia, obviously from spasmodic closure of the glottis. A few minutes later the patient was removed to a bed, when several similar attacks occurred, one of them still more severe than the first. He recovered in the course of some hours.

This is an instance of spasm of the glotts produced by an accumulation of carbonic acid in the circulation. The gas in question possesses anæsthetic properties, and is so far allied to chloroform.

The third case is one of equal interest, although the subject of the observation was a dog. About two years ago, when engaged in injecting an aqueous solution of sulphuretted hydrogen into the external jugular vein of a dog, I observed that the animal's respiration, instead of becoming somewhat deeper, as usually happens during this operation, began to fail, and shortly afterwards ceased, without their being the slightest struggle or apparent symptom of asphyxia from the closure of the gottis. I immediately prepared to have recourse to artificial respiration by means of an instrument I have invented for that purpose. In order to insert a tube into the trachea, I incised this organ, when immediately, to my surprise, the animal commenced breathing through the opening. After a few minutes, free respiration and sensibility returned, and the animal recovered perfectly. It is obvious that, in the present instance, the respiraton had been arrested by closure of the glottis, and the animal was dying from asphyxia; had not tracheotomy been performed, the dog would have died with every symptom of syncope. This case, which I report from memory, was witnessed by many of the pupils of the Westminster Hospital. It shows two interesting facts.

1st. That the presence of an excessive quantity of sulphuretted hydrogen in the blood may cause death from spasm of the glottis; and, 2nd. That on those occasions death takes place without the struggles or convulsions so peculiar to impeded respiration. Consequently, in cases of death from chloroform, the absence of convulsions is no proof that there exists no mechanical obstical to the free admission of air into the lungs.

The symptoms of death by chloroform are consistent with those of asphyxia. Dr. Snow's book contains a very interesting case of death from chloroform, with symptoms of asphyxia, which was communicated by Dr. Solly to the *Medical Gazette.* This case (No 12) bears directly on the subject of the present communication. The patient, a porter, aged 48, and apparently in perfect general health, was submitted to chloroform for the removal of a toe-nail. The anæsthetic vapors were administered by means of an inhaler; after the operation had been per-

formed, and being still insensible, the patient's face became dark, his pulse small, quick, but regular, respiration laborious; his neckerchief was removed and chest exposed to fresh air from a window near to the bed, cold water was dashed on his face, the chest rubbed, and ammonia applied to the nose. After struggling for about a minute, he became still, the skin cold, pulse scarcely perceptible, and soon ceased to be felt at the wrist. Immediately on the appearance of these symptoms artificial respiration was commenced by depressing the ribs with the hands and allowing them to rise again, until the proper apparatus was brought, when respiration was kept up by means of the trachea-tube and bellows, and oxygen gas introduced into the lungs by the same means. Galvanism was also applied, but to no purpose.

Dr. Snow considers there is some obscurity about the above narrative, which I have given as nearly in the same words as those used in the report; in his opinion the symptoms exhibited would be inconsistent with death from chloroform. It appears to me, however, that this is clearly a case of asphyxia from spasm of the glottis under the influence of chloroform, and I cannot help believing that had treacheotomy been performed at the time when artificial respiration was commenced, the patient would have been saved. If most cases of death from chloroform are not attended with evident signs of asphyxia, still this is no argument in favor of the absence of spasm of the glottis, for it must be remembered that poisoning by chloroform is a complex phenomenon which results from excessive anæsthesia producing a tendency to paralysis of the muscles, and an action on the heart predisposing to death by cardiac syncope; any epasmodic closure of the glottis occurring under these circumstances would, it may be anticipated, cause sudden death without the recurrence of convulsions, or struggles for breath.

The *post mortem* appearances in cases of death from chloroform do not preclude the idea of death from asphyxia; indeed in cardiac syncope, which is according to Dr. Snow the fatal termination of poisoning by chloroform,—"If the blood have not been displaced by artificial respiration or other causes, the right cavities of the heart and the adjoining great veins will be found filled with blood, and the lungs will in many case be more or less congested. The appearances, in short, will be very much the same as in asphyxia by privation of air which ends in a kind of cardiac syncope." Nothing can be more in favor of the view I am advocating. It must be well understood that I do not consider every case of fatal poisoning by chloroform as owing to spasm of the glottis, and there is every reason to believe

that in some instances death takes place from paralysis of the muscles of respiration, in others from cardiac syncope, or from a simultaneous occurrence of both these effects.

If it be admitted that death from chloroform be occasionally owing to spasm of the glottis, then the importance of performing tracheotomy in these cases, and adopting some means of allowing air to enter freely through the wound, will be readily understood. It must be remembered that the cases on record of recovery from suspended animation owing to an overdose of chloroform are very few, and, as a rule, it may be considered that, after the respiration has ceased, and the pulse become hardly perceptible at the wrist, death is inevitable. Under these circumstances, any means apparently available should be adopted. The operation of tracheotomy ought to be performed as soon as possible after the respiration has stopped, and the patient assumed that livid countenance known in these cases to precede death; the loss of every second diminish the chance of saving life. Artificial respiration, if possible, must however not be neglected, and should be carried on before, during, and, if necessary, after the operation of tracheotomy has been performed. Artificial respiration is of great importance in connexion with death from chloroform, and I am at present busily engaged inquiring into this subject.—*Medical Times and Gazette, and Boston Journal.*

ON LOCAL ANÆSTHESIA FROM COLD, AND ITS APPLICABILITY TO THE SEVERER OPERATIONS.

By JAMES ARNOTT, M.D.

The recent occurrence, within a short period, of several deaths from chloroform, has again forcibly drawn the attention of the profession to the subject of anæsthesia in surgical operations. That chloroform and other general anæsthetics will by improved modes of administration, be deprived of their dangerous properties, is a hope now scarcely entertained, as evers effort to accomplish this, made during the last 14 years, has utterly failed; and the conviction has become general that it was unphilosophical, as being opposed to our former experience of analogous agencies, to expect that any means which so suddenly suspends both sensation and consciousness could be used without danger to life. The late recommendation of an American surgeon, that extreme or death-like drunkenness from alcohol should be sub-

stituted for the anæsthesia produced by ether and chloroform, is not on this account, likely to be well received.

Under these circumstances, it is natural to inquire whether the mode of producing the local insensibility by intense ar congealing cold, which has been practised and recommended by many surgeons as a perfectly safe and effectual expedient in minor operations, cannot be modified and extended to operations involving the incision of the deeper textures; and whether the suffering caused by these deep incisions, if it cannot be thus completely prevented, might not be so reduced or rendered tolerable as to make the administration of chloroform unnecessary.

The principal objection which was at first made to the production of anæsthesia by cold, that it was troublesome and tedious, it is now hardly worth while to notice. The trouble occasioned by mixing a little pulverized ice and salt, and applying the mixture by means of a bit of gauze for a minute or two to the skin (which is the ordinary mode of effecting congelation), has been found to be very little, and much less than what is required for the proper administration of chloroform. No previous minute examination of the heart and lungs is necessary for local anæsthesia; no assistant to watch the respiration and pulse, as well as to restrain the convulsive movements of the patient; no preparation of breathing and galvanic apparatus; for all of these, as we learn from the proceedings at coroners' inquests, are now expected by the public, and they all should be attended to and provided in order to lessen as much as possible the risk incurred.

Another objection to congelation was, that the reaction from it might interfere with the healing of the wound. But there is no reaction, in the proper sense of the term; instead of an increase there is a decrease of action as the result of congelation, and the antiphlogistic virtue proceeding from this effect is most valuable in preventing that excess of inflammation which so often prevents union by the first intention. This was strikingly shown by the different results of two operations performed on varicose veins in the Birmingham Hospital, one of which was done under anæsthesia from cold; and a list of nearly a hundred operations under congelation has been published by a London surgeon, in all but two of which the wound, when it was desired, healed by the first intention. Nor, so far as I know, has erysipelas ever succeeded an operation performed under this anæsthetic. It might, however, be otherwise if the congelation were by any means made to extend to the deeper tissues in the severer operations; for I have observed that when, in some of

its remedial uses, it has been made to penetrate deeply, a very perceptible swelling has been the consequence, which might be adverse to union by the first intention, and, at all events, it would be necessary to bear this circumstance in the mind when dressing the wound.

Sir Charles Bell, in his Bridgewater Treatise on the Hand, has said that the skin is exquisitely sensitive in order that it may serve as a protector or monitor to the parts underneath, which, in their normal condition, are comparatively insensible; and that it is only when the skin is cut by the surgeon that acute pain is felt. If this statement be correct (and the opinion is not confined to Sir C. Bell), it would follow that any means capable of completely suspending the sensibility of the skin would deprive the deeper operations of their terrors. This cutaneous anæsthesia can certainly and on all occasions be effected by congelation, which, in its ordinary degree, not only thoroughly benumbs the skin, but the subcutaneous tissue also. And as the healing of the operation-wound is as certainly promoted by such moderate applications of this agent, it is cruel to withhold it in those amputations which are performed without chloroform, in consequence of the patient's extreme weakness or visceral disease rendering the danger from its use greater than usual.

It is undoubtedly a great defect of congelation, that its influence, in the ordinary mode of applying it, should extend to so small a depth. Whether the danger from chloroform ought not to be reckoned a much greater defect, in comparing the two agents, is a point on which opinions will probably continue to be divided. Those, however, who insist upon the necessity of perfect anæsthesia in operations, or at least of perfect forgetfulness by the patient of his having endured pain, may conjoin with congelation such a comparatively safe dose of chloroform as will be sufficient to render the deeper-seated tissues insensible.

Other modes of producing local anæsthesia have been proposed. In a treatise on Indigestion, published in 1847, I suggested the local application of aconitine and other narcotics, but their action has been found inadequate and uncertain; and electricity, at one time so much extolled for operations on the teeth, has proved a delusion. Local anæsthesia itself has suffered in character from the disappointment caused by the failure of these and similar expedients.

Having elsewhere described minutely the various methods of producing anæsthesia by cold, whether by the application of

solids, liquids, or gases, already cooled to the requisite degree, or of bodies in a state of rapid transition from the solid to the fluid or aerial form, I shall at present limit myself to a very few remarks on this part of the subject. If sufficient pressure were combined with congelation, I have no doubt its influence would penetrate deeply enough to render amputation of the limbs perfectly painless. And this simultaneous pressure and congelation could easily be effected by enclosing a portion of the limb in a cylindrical case of gutta percha with membranous endings for tying, containing a powerful semi-fluid frigorfic mixture, and having rising from it a verticle tube, in order to contain conveniently the requisite hydraulic pressure. A flat, thin, metalic bottle, filled with such a mixture, or a solid piece of brass of the same shape already cooled to below zero of Fahr., would, by being passed slowly round the limb, constitute a convenient means of congealing the skin in amputation; and it is not improbable that the principle of the new mode of making ice by the sudden evaporation of ammonia may be found applicable to the construction of a simple apparatus for remedial congelation. If a dentist were willing to incur the necessary expense of time and money, he could, in the extraction of carious teeth, or in preparing the mouth for a set of artificial teeth, benumb the alveolar process very perfectly by covering the gums with a thin metalic case made to fit with the greatest accuracy by electrotype or otherwise, through a current of freezing brine could be passed. A current brings fresh particles of the cold body in quick succession, and the same advantage is obtained when a thin metalic vessel, containing a powerful freezing mixture, is both pressed and moved upon the part.

In the above observation I have made no allusion to the question whether the results of operations are affected by the chloroform taken to render them painless. When the operation is not severe, any increase of danger that might be produced by chloroform would not be appreciable; and certainly statistics show no increase of the mortality from these operations. It is very much otherwise, however, if the operation be in itself dangerous. Every reliable and extensive statistical report of such operations shows a great increase of mortality, all other circumstances being the same, since the introduction of chloroform. Nevertheless, many lives have been saved by etherization, for many patients would not have submitted to necessary operations without its use. As a remedy, also, of strangulated hernia, it has been highly and deservedly commended, but not in terms of higher eulogy than we find old authors bestowing on the simi-

lar virtues of tobacco. It is singular that both of these remedies of hernia should have the same defect. As respects tobacco, its fatal action in some few instances has led to its disuse. —*London Lancet.*

York Street, Portman Square, June, 1862.

ON THE PATHOLOGICAL ANATOMY OF PUERPERAL FEVER.

By PROFESSOR BUHL.

Professor Buhl, of Munich, having examined the bodies of fifty women who died of puerperal fever, states that a constant and characteristic appearance is a pappy, red or dark brown or grayish-black mass lining the inner wall of the uterus, giving forth sometimes a gangrenous and sometimes a putrefactive smell. It is this matter which supplies the poisonous infection of puerperal fever; but as to the cause of the production of the fever, differences of opinion prevail; some regarding it as the consequence of the immediate passage of poisonous matter into the womb, while others think that a preliminary poisoning of the blood by misasmata takes place, the corrupted mass being only a secondary result. Anatomically, we may distinguish two forms of puerperal fever—puerperal pyæmia and puerperal peritonitis—forms which may be clinically distinguished, as it is of importance in prognosis that they should be so.

Puerperal pyæmia does not usually prove fatal before the ninth day, and frequently not until after the third week. It is chiefly met with where the disease does not put on an epidemic form, the veins being the channel of infection; coagula, accompanied by suppuration, being found in the veins of the walls of uterus, in a pampiniform plexus or in a spermatic vein. In no instance did the author ever find both spermatic veins obstructed, and in only one case was the entire vena cava inferior filled with adherent coagula. These coagula and their subsequent caseous metamorphosis are quite sufficient to establish the existence of puerperal pyæmia, the so called metastatic abscesses being seldom met with. Œdema of the lungs and ecchymosis of the pleura were frequently met with by the author.

The puerperal peritonitis was more frequent, more violent, and more rapidly fatal than the puerperal pyæmia, inasmuch as death sometimes occurred within two days after delivery, and in but few cases was delayed to the third week. Of the 32 cases of this variety only 2 were chronic, proving fatal in the course

of six or eight weeks. In all the cases purulent exudation was found, in 18 instances occupying the tubes, and in 14 the subserous tissue of the uterus. The two conditions were found combined in only 4 instances, and a plugged condition of the veins was observed only in 5 instances. Of the 18 instances in which puerperal pyæmia occurred, in only 2 was there pus in the tubes, and in only 1 subserous effusion of pus; so that of 20 cases of tubal suppuration, in 18 peritonitis was present, and of the 14 cases of subserous suppuration peritonitis occurred in 13. On the other hand, of 23 cases of purulent coagula of the veins, in only 5 did peritonitis occur, and in all these there was subserous or tubal suppuration also, and in 16 cases in which these parts exhibited no pus, no peritonitis took place. The disease of the veins thus bore no relation to the occurrence of peritonitis. It results from these facts, that peritonitis may arise either from the immediate passage of the poisonous material from the uterus through the tubes, or from the conveyance of this from the inner wall of the uterus by the lymphatics. The supposition that the pus may have proceeded from the perritoneum into the tubes is negatived by the fact of these having been free of it in 14 cases; and the pus of the peri-uterine, subserous tissue or of the lymphatic vessels must be regarded rather as a consequence than a cause of the peritonitis, inasmuch as it was absent here in twenty instances. The prognosis is not alike in these two modes of origin of the peritonitis. That induced by the pus from the tubes is a much slighter and more simple inflammatory process, met with when there is little or no epidemic extension of the disease; while the peritonitis resulting from lymphatic absorption is a much severer form of disease, preceding or accompanying general infection, and is especially met with in the epidemic form.

In both of the principal forms of puerperal fever, besides the morbid uterine appearances there were found—1. Almost constantly swelling and watery infiltration of the retro-peritoneal, inguinal, and (though seldomer) the mesenteric glands. 2. Osteophytes on the internal surface of the cranium. 3. In several cases, especially in pyæmia and lymphatic absorption, a distention of the cortical substance of the kidney, together with the microscopical appearances corresponding to the acute stage of Bright's disease. In only two of fifty individuals was tuberculosis found.—*Froriep's Notizen.* 1861. No. 13.—*Med. Times and Gazette.*

STRYCHNIA AND MORPHIA.

Mr. John Horsley, analyst for the county of Gloucester, has lately drawn attention to an observation originally made by Dr. Letheby, and confirmed by Dr. Reese and Professor Thomas, of Philadelphia, that morphia has the power of disguising and destroying the colored reactions by which strychnia is recognized. His investigations have led him to the discovery of a method by which the difficulty thus arising may be overcome, and also to a new test for strychnia. He writes: "I have, however, satisfied myself of another very important fact, viz., that it need not create any alarm or uneasiness in the public mind, for the difficulty in question is more apparent than real; since, in any case where both active principles are capable of extraction from a dead body, the strychnia is effectually separated from the morphia, in a form admirably fitted for identification, by adopting the following simple method, which I had the honor of submitting to the British Association for 1856, viz., to convert the strychnia into a chromic salt, by the addition to the pure and concentrated liquid of a few grains of the neutral chromate of potash, and briskly agitating the mixture with a glass stirrer, for a minute or so, when, if strychnia be present, a more or less flocculent, but crystalline precipitate, of a golden color, will separate and collect at the bottom of the vessel. In the course of a few minutes, the supernatant liquor containing the morpha (which is much longer in precipitating), must be carefully decanted. If now a drop or two of the residue containing the golden-colored strychnian salt be taken up with a pipette, and projected into a small white porcelain dish, and touched with strong sulphuric acid, the usual purple and violet-colored indications of strychnia will be most marked. In this way, a very small quanity of the poison will suffice for numerous chemical experiments, as demonstrated by me before the Chemical Section of the British Association. A similar precipitate of morphia does not react in this way, but is turned of a green color; hence, when morphia is in excess, it has the power of completely masking the colored reaction of strychnia, which, though present, remains passive and unelicited; but, by the process described, the strychnia can be easily separated from the morphia, or any other active vegetable poison with which it may be associated, when once these have been extracted from a dead body in a sufficiently palpable form. Thus much for the method of separating strychnia when present with morphia; but beautiful and delicate as is this method of detection, yet it is very far in-

ferior to a new reagent I have just discovered, viz., the nitroprusside of sodium, which enables me to detect the 100,000th of a grain with the greatest ease! These may be considered large figures, but are arrived at thus: One grain of strychnia is first dissolved in 100 grains of water; then one drop of this solution is mixed with 999 more of water, and a fragment of the nitroprusside of soda added. When dissolved, and well mixed by agitation, a single drop of this solution, equal to the 100.000th of the original grain of strychnia, is let fall into a small white ware dish, and, after evaporation to dryness over a steam bath, is fit for the development of the characteristic color, by merely drawing a glass rod dipped in sulphuric acid across the spot. The 3000th part only, with the best experiment, being the limit of the ordinary process, the new test, therefore, exceeds the old by 97,000 times the intensity; in other words, it is about 30 times more delicate."—*Med. Times and Gaz.*, June 28, 1862.

HEALTH OF THE BRITISH ARMY AND NAVY COMPARED TOGETHER.

Dr. Milroy read a paper on this subject before the Social Science Congress at its recent meeting. It contained the following startling facts in reference to the two services: In the army, in 1859, in the United Kingdom, the annual death-rate was 8.4 in 1000; in the Mediterranean it was 13; in the West Indies, 17; in the Australian colonies, 10; and in Ceylon and China, 47.1. The death-rate in the navy was as follows for the year 1858: On the home station, 9.6; Mediterranean, 11.1; West Indian, 20.8; Australian, 7.9; and East Indian and China, 62.5. The daily sick-rate in the army was as follows: United Kingdom, 50 in 1000; Mediterranean 48; West Indies, 53.5; Australian colonies, 27; Ceylon and China, 99.5. The daily sick-rate in the navy was: Home station, 53.5; Mediterranean, 48.7; West Indian, 66.6; Australian colonies, 42; and East Indies and China, 92.

A discussion ensued upon this paper in which Mr. J. N. Redcliffe said it was worthy of notice that Lord Clarence Paget in moving the navy estimates, had stated that a large amount of the mortality and sickness in ships was believed to be traceable to the want of proper ventilation between decks; but was not aware that the ventilation of iron-plated ships had been brought under the notice of the parliament committee which had been appointed to consider the subject. The iron-plating of ships shut out the means of ventilation, and the temperature between the

decks of the *Warrior* was much higher than in any of the other war ships of the navy now in use. He understood that the Government had directed that seventy tons of solid brickwork should be placed on the bottom of the ship to keep out the bilge-water, but whether or not it was to be cemented he did not know. At the same time he must say that, when this brick-work should become impregnated with bilge-water, the evils would be greatly aggravated. Therefore, what the condition of the iron-plated ships now building would be could be readily conceived, and he thought it was urgently required that the attention of the Government should be drawn to the ventilation of the *Warrior*, *Black Prince*, *Defence*, and the other iron-plated ships now building, or the mortality might prove much greater than it was at the present time.—*Dublin Medical Journal*, June 25, 1862.

Book Notices.

HEALTH: ITS FRIENDS AND ITS FOES. By R. D. MUSSEY, M.D., LL.D., late Professor of Anatomy and Surgery at Dartmouth College, N.H., and of Surgery in the Medical College of Ohio; Fellow of the American Academy of Arts and Sciences, etc., etc. Boston: GOULD & LINCOLN. 1862.

This is a neatly printed volume of 368 pages, embracing the consideration of a variety of interesting and important topics.

The author is one of the oldest and most eminent of the living members of our profession; and, though he has written more directly for the benefit of the public at large, yet every physician will find himself amply remunerated for the time spent in a perusal of the work.

It is, in fact, a very valuable work on personal hygiene; embodying the personal experience and extended observations of one of the most erudite men of our time, on the following subjects:—The Corset—Clothing—Boots and Shoes.

Ventilation—Light—Sleep—Exercise—Bathing.

Alcohol—Its Effects in Health and Disease.

Tobacco—Its Influence upon Life and Health.

Tea and Coffee.

Casper Hauser.

Organic Sympathies.

Man by Nature a Vegetable Eater.

Diseases of the Teeth, and of Wild Animals.

Man Omnivorous by Practice—Gluttony, etc.

Quantity of Food—Economy of Vegetable Diet, etc.

Vegetable Food Sufficient for Man—Moral and Intellectual Effects of Vegetable Diet, etc.

Objections to Vegetarianism—Cherokees, etc.

Vegetable Diet—Illustrative Cases.

Injudicious Diet and Disease—Cases.

Vegetable Diet as a Remedy—Cases.

Ophthalmia—Deaths from Eating—Distillery-fed Pork—Intemperance in Eating and Drinking.

Apoplexy—Palsy—Epilepsy.

Epilepsy—Dyspepsia.

Constipation—Colds.

Blood Poisoning—Parasites.

My Own Experience.

Milk and Vegetable Feeding for Surgical Operations.

Length of Life.

All these subjects are discussed in a plain, but chaste and pleasing style.

We cordially commend the work to the public and the profession.

A Practical Treatise on the Diseases of the Throat and Great Vessels, Including the Principles of Physical Diagnosis. By Walter Hayle Walshe, M.D., Fellow of the Royal College of Physicians; Professor of the Principles and Practice of Medicine, and of Clinical Medicine, University College, London; Physician to University College Hospital; Consulting Physician to the Hospital for Consumption. A new American, from the Third Revised and much Enlarged London Edition. Philadelphia: Blanchard & Lea. 1862.

The former editions of this work have been long enough before the Profession, for their merits to be fully appreciated. The present edition has been thoroughly revised by the author, and is much enlarged, containing 420 royal octavo pages. It is undoubtedly the best work on the diseases of the throat and great vessels, which is accessible to the profession.

For sale by W. B. Keen & Co., Lake Street, Chicago.

CAUSES AND CURE OF DISEASES OF THE FEET: With Practical Suggestions as to their Clothing. By C. H. CLEVELAND, M.D. Cincinnati: Printed by BRADLEY & WEBB. 1862.

This is an unbound monograph of 111 pages, consisting mainly of the re-publication of articles originally appearing in the *Cincinnati Journal of Rational Medicine.* From a hasty examination, we think it a well written and judicious practical treatise on the diseases of the feet; many of which are troublesome and difficult to cure.

COMMUNICATIONS OF THE RHODE ISLAND MEDICAL SOCIETY, FOR THE YEAR 1862. Published by the Society. Providence: COOK AND DANIELS, Printers.

This pamphlet contains the record of proceedings of the Rhode Island Medical Society, and the communications made to it, for the year ending June 4, 1862. The most important of these communications is an interesting address on "Hereditary Transmission," by B. LINCOLN RAY, M.D., though all of them are worthy of a careful perusal.

Editorial.

CHICAGO MEDICAL SOCIETY.—OVARIOTOMY.—DISEASES AT CAMP DOUGLAS.—CAMP DYSENTERY, &c.—The Chicago Medical Society held its regular monthly meeting in Larmon's block, September 5, 1862. The President, Dr. S. WICKERSHAM, was in the Chair, and a goodly number of the members were in attendance. Among the items of interest presented to the meeting we note the following:—

OVARIOTOMY.—Dr. A. FISHER presented an ovarian tumor, consisting of a single cyst of considerable size, and a solid part weighing about three pounds. The cyst had contained about sixty-four ounces of fluid. No part of the tumor exhibited any of the appearances of a cancerous or malignant structure, but the solid part evidently belonged to the class of simple fibrous

growths. The patient from whom it had been removed was a married woman, 47 years of age, good constitution, and had borne four children. A small tumor was first felt in the right ileac region about one year since. In a short time it seemed to disappear from that side, and another made its appearance in the corresponding region of the left side, where it remained, and increased steadily until removed by the operation.

At the time the patient came under Dr. FISHER'S care for an operation, the abdomen was much distended with fluid, a great part of which was evidently in the cavity of the peritoneum. The tumor, however, was well defined, and very movable in all directions, showing the probable entire absence of adhesions. This, with the rapidity of its growth, and good constitution and health of the patient, caused the operation to be recommended without hesitation. The patient assenting, the operation was performed by Dr. FISHER, in the presence of Drs. MYERS, ALLEN, WICKERSHAM, and others.

On opening the peritoneum, about two gallons of water escaped from the cavity. The incision was then enlarged, the sac of the tumor punctured and relieved of two quarts of a serous fluid. The whole tumor was then found to be free from adhesions, and was readily drawn through the opening. A ligature was placed firmly around its root or pedicle, and the tumor excised.

The operation was finished by closing the wound with sutures which passed through the integument and the pedicle, so as to retain the latter at the surface.

Two grains of opium were administered and the patient placed in bed. No bad symptoms followed, and the patient recovered perfectly in a few weeks.

DISEASE IN CAMP DOUGLAS.—Dr. M. O. HEYDOCK, one of the assistant-physicians to the camp-hospitals, in which are a large number of rebel prisoners, made an interesting report in relation to the diseases that had been most prevalent among them during the past summer. Pneumonia, which had been so prevalent and fatal during the early Spring, had not entirely disappeared during the Summer, but was not of frequent occurrence.

The diseases most prevalent, among the prisoners, during the past three months, have been diarrhœa, dysentery, erysipelas, fevers, and dropsy. Erysipelas had been very prevalent, attacking almost every part of the cutaneous surface, in different cases, and presenting every degree of severity. It had been most successfully treated, by nutritious diet, and the internal use of from 20 to 40 drop doses of muriated tincture of iron, sometimes aided by quinine and opiates.

Most of the cases of fever, were of the continued or typhoid type. A few had seemed to possess an extreme degree of malignancy, running to a fatal termination in from 20 to 72 hours.

These rapidly fatal cases did not present the symptoms that usually characterize pernicious fever of a malarious origin. The patients had usually felt slightly indisposed for two or three days previous to the attack; when they would suddenly become overwhelmed with exhaustion, and on being brought into the hospital were found with face suffused with a dark flush, eyes injected, lips leaden color, the capillaries of the cutaneous surface generally congested, and the extremities cold. The pulse small, soft, and weak; respiration sometimes hurried, and at others slow and sighing; general restlessness; and dulness of mental faculties. In many cases the tongue was perfectly clean, and no evacuations, either by mouth or rectum, and little or no secretion of urine. In some cases the patients complained of very severe pain or distress, generally in the epegastric and hypochondriac regions, though sometimes in the head and back. The circulation became rapidly more feeble, the respiration less efficient, the coldness more general, a cold sweat appeared on the surface, and death occurred, in some cases, within twelve hours, and in others, not until the end of the third day. The appearance, on making *post mortem* examinations, were, general venous congestions or fulness of the venous capillaries, and the dark color and uncoagulated condition of the blood. The latter were constant appearances; the blood in large vessels and cavities of the heart being always dark, venous color, and entirely free of any coagula. The muscular structure of the heart was darker color and softer than natural. The liver was moderately en-

larged in most cases, and its central portions decidedly softened, with points of black blood starting out from the surface whenever it was cut through. The spleen was generally found altered in the same direction, though not to the same extent as the liver. The lower and posterior portions of the lungs were usually moderately engorged with dark blood. No marked lesions in the intestines. The bladder was usually found empty, and the kidneys normal in size and only moderately congested with blood. Their structure appeared slightly softened, and the investing membrane more easily peeled of than natural. Neither the brain or spinal cord were examined in any of the cases. Neither did Dr. HEYDOCK make any mention of the appearances of the ganglia of the sympathetic nerve.

From the symptoms during life, and the appearances of the blood, as well as the general tendency to softening of structures, revealed by the *post mortem* examinations, we should regard these cases as belonging to the class of malignant typhus.

Both the predisposing and exciting causes were such as would be likely to engender this variety of fever.

Confinement for several months, as prisoners closely within the camp; a limited *variety* of food; and more or less mental depression, were well calculated to depress the vital properties, impoverish the blood, and enfeeble all the organic movements.

The system brought to this condition by such causes, and then exposed to the hot, sultry, and damp atmosphere of many of our summer days, was well calculated to so far suspend the vital affinity of one organic atom for another as to arrest organic change, and consequently both capillary circulation, secretion, and the evolution of caloric. Of course, such a condition leaves scarcely an available degree of susceptibility to the action remedies of any kind, or a capacity for reaction, and consequently the patients almost uniformly die in from half-a-day to three days from the commencement of the attack.

Dr. HEYDOCK told us that many remedies had been tried, chiefly belonging to the class of diffusable stimulants, though quinine had also been faithfully tried, in every variety of dose, from the smallest to the largest, but without any apparent effect

whatever. He thought large doses of muriated tincture of iron, given as in the treatment of erysipelas, and aided by diffusable stimulants, had more effect than any other remedies tried.—Query: Would not the sudden application of cold effusions, alternated with warm dry flannel to the surface, and the liberal internal use of the chlorate of potassa or soda, in addition to the tincture of the chloride of iron, be more effectual in reviving the almost suspended susceptibility and vital affinity in such cases, and thereby establish a reliable reaction, than the means generally resorted to?

Diarrhœa and Dysentery.—Dr. HEYDOCK stated that the cases of diarrhœa and dysentery were numerous; generally persistent, with a tendency to continue in a chronic form, accompanied by an extremely anemic condition of the blood, and frequently dropsical effusions. The symptoms of the more recent cases of dysentery differed from those usually presented, chiefly in there being less heat of skin, more palor, and a remarkable clean tongue, but little disposition to become either dry or red. This clean and rather pale appearance of the tongue and gums continued throughout the whole course of the disease, even in its most chronic form.

The *post mortem* appearances, observed in those who had died after a protracted course of the disease, were highly interesting. The adipose and muscular structures were in a state of extreme atrophy; even the heart itself was found much smaller than natural and of a paler color.

Serous effusions were found in most cases, and in some they existed in almost every cavity or serous sac in the body. But while the cavity of the peritoneum, pleura, pericardum, etc., were often found more or less distended with serous fluid, the presence of plastic exudations, adhesions, or any other traces of inflammation were very rarely observed. Purple or petechial spots were often found on that part of the peritoneum covering the colon and lower part of the ileum, and the usual appearances of readness, tumefaction, softening and ulceration in the mucous lining of the same portions of the alimentary canal, were uniformly present, to a greater or less extent.

Among a large variety of remedies used in the treatment of chronic cases, Dr. HEYDOCK found the combination of alum and opium more efficient than any other in arresting the discharges. We have occasionally used alum in cases of dysentery, occurring in anemic subjects, for several years past, and generally with prompt benefit. In some cases, of protracted duration, in soldiers and officers returned from the army, during the present summer, a powder of alum, 5 grs., and opii. from 1 to 2 grs., given every six hours, with 15 drops of the liquor ferri nitratis between, has speedily overcome the disease.

In other cases, we have used the emulsion of oil of turpentine and laudanum every two, three, or four hours, according to the frequency of the discharges, and a pretty full dose of tannate of quinine every morning, with perfectly satisfactory results.

In some of this class of cases, in which there seems to be great relaxation of tissues, as well as impoverishment of the blood, the following formula has been productive of much good:

℞.—Strychnia,..... 1 gr.
Nitric Acid, ... ʒj.
Tinct. Opii.,..... ʒij.
Water, ... ʒij.

Mix, and give to an adult, a fluid drachm every 4 or 6 hours, diluted with sweetened water.

PROSPECTS OF OUR MEDICAL SCHOOLS.—Our readers will be glad to know that the prospect of having a full class of students in attendance at the opening of the annual winter term, in the Medical Department of Lind University, is good; and all the arrangements are completed for having the instruction in each department full and complete. The dissecting room will be open, and material supplied for dissection, on or before the 1st of October; and the same liberal clinical advantages afforded as in former years.

There will be four hospital and two dispensary clinics each week, thus affording to the advanced students one hour of direct clinical instruction at the bedside of the sick every day.

The regular winter term commences on the second Monday in October, and continues until the first Monday in March.

The Rush Medical College commences its regular course on the 1st of October, and continues sixteen weeks.

Of the detailed arrangements for the term, and the prospects in reference to the number expected to attend, we are not informed, but presume both are substantially the same as in former years.

TREATMENT OF EPILEPSY.—Dr. John W. Ogle, assistant-physician to St. George Hospital, London, has an article in the September number of the *London Lancet*, calling attention to a species of the *galium* as a remedy for the cure of Epilepsy.

It seems that there has been, for several years past, an establishment at Tain, in the South of France, at which large numbers of Epileptic patients are treated annually, and with much reputed success. Almost the only medicine used is the expressed juice of a species of the galium. Dr. Ogle calls it the galium alba.

From the observations made by Dr. Ogle, and the testimony of others, it would appear that the remedy is worthy of further trial.

OBSERVATIONS ON THE EFFECT OF THE PREPARATIONS OF IRON.

TRANSLATED FROM THE GERMAN

BY D. S. GANS, M.D., Cincinnati, Ohio.

Dr. Pakrowsky, of St. Petersburgh, had opportunity to observe several patients in the hospital there, who, for various diseases, took iron; and he directed his particular attention to the effect of that remedy on the tissue-change. To that end he measured daily in all the patients the temperature of the body, the quantity of the consumed food, the quantity of the excrements; of the urine, the specific gravity of the same, and the quantity of the chlorides and urea in the same.

After giving the histories of the cases, he comes to the following conclusions:

1. The temperature of the body is positively heightened by the use of these preparations.

2. This increase results in some cases very soon; in one case it occurred after five hours; in others slower, and in one case after a long interval and after a large dose.

3. The temperature, the morbidly lowered as well as normal one, is increased; and if it ceases to rise after reaching a certain height, having taken a certain quantity of the iron, the temperature will rise more by increase of the dose.

4. Several days after using it the pulse rises also, although not in all cases.

5. Very soon, and consequent upon the increase of the temperature, the daily amount of urea in the urine increases.

6. The use of iron increases the weight of the body.

7. Every preparation of iron produces the same effect, and a change in the different preparations in the same patient does not alter the result.

8. The diuretic effect of citrate of iron was very distinct in two cases, but was wanting in three under the same conditions.

9. In all cases where iron was used no constipation of the bowels took place, except a slight one after iodide and lactate of iron. It was borne well, and in large doses, by the digestive apparatus (nine grains pyrophosphate of iron, and fifteen grains ferrum hydragenio reductum).

10. Dropsical transudations in the subcutaneous cellular tissue were resorbed by the use of iron, even in patients with insufficiency of the mitral valve, and reappeared after stopping with the remedy.

11. The increase of the heart's impulse and the dyspnœa in patients with organic cardiac diseases disappeared even in cases in which digitalis had done nothing.

12. After the normal temperature of the body had been raised by the use of iron, it lasted a considerable time after stopping with its use before returning to its normal condition; whilst the morbid lowered temperature rose quickly by the use of iron, it fell just as quickly by stopping with its use—at least, with the other pathological symptoms continued, and where consequently the cause of the low temperature was not cured.

Referring to these facts, the Doctor lays down the following maxims: Taking into consideration that the temperature of the body and the quantity of urea in the urine is increased by the use of iron, that the œdematus condition disappears and the weight of the body is augmented, we are fully justified in ascribing to the iron a nutritive power. The increase of temperature indicates a

stronger tissue-change, for this is constant, and accompanied by other symptoms indicating a heightened nutrition. How this is brought about it is difficult to say. Increase of the blood quantum or of the blood corpuscules can not be the cause; both increase very slowly, whilst the change of tissue augments very quickly. Neither can the increase of the pulse explain the elevated temperature, as the first succeeds the latter. The respiration is not altered by the iron, hence can not have an influence upon the temperature.

According to Dr. Pakrowsky, we have, therefore, to look for the effect of iron in the finest arterial and capillary system, one of the most important places of nutrition, and the growth of the tissue and organs, and so much more, as the disappearance of dropsical transudations in the subcutaneous cellular tissue after the use of iron, points to that system. The most probable is the supposition that the iron acts upon the contractile elements of the finest arterial branches, which must have, without doubt, a high and important influence upon the capillary circulation, and, namely, upon the degree of the tonics, *i.e.*, the degree of tension of the walls of these ramifications. The iron must consequently alter the conditions of the diffusion of the elements composing the tissue and organs. Only in this way does it seem possible to explain the quick effect of iron upon nutrition and the resorption and the œdematous transudations.–*Virchow's Archiv.* xxii. 1862; *Cincinnati Lancet and Observer.*

Ovariotomy in Paris.—Prof. Nelaton has just performed the operation of ovariotomy, on a woman of twenty-six, who had been ill only one year, but with whom the accumulation of water was so rapid that she was tapped in May last. The cyst filled again in a short time, and M. Nelaton removed the whole growth on the 17th June. After the incision of the abdominal walls, the cyst was seized with blunt forceps and tapped. When quite empted, it was found to adhere to a portion of omentum, which latter was cut, a small portion of it remaining attached to the cyst. The latter was connected with the uterus by a very narrow pedicle, which was seized with a peculiar instrument and divided. Three small omental arteries were tied, and the wound closed by six metallic sutures. Some blood had trickled into the abdomen, and as M. Nelation considered that it might decompose, and be of great prejudice, he removed it from the cul-de-sac between the uterus and rectum by means of a sponge twice the size of a fist. The cyst was multilocular, and contained about eight quarts of viscous stringy liquid. The patient was

operated on in a county house near Paris, and was in a very favorable state a week after the operation. We must not omit to state that, on the 2d of June last, Mr. Kæberle, deputy professor at the Faculty of Medicine at Strasburg, performed the operation of ovariotomy on a woman of 26 years. The diameter of the cyst was from nine to ten inches; and we are glad to say that on the 20th of June, the patient was doing extremely well, and likely to make a good recovery.—*London Lancet.*

Perchloride of Iron and Ingrowing Toe-nail.—Dr. J. F. Miner corroborated before the Buffalo Medical Association the efficacy of this treatment. A few grains introduced by the side of the nail, between the free edge and the ulcer, was the most pleasant and efficient treatment he had ever seen adopted. He had used it in several mild cases with the greatest satisfaction; thought possibly it was better adapted to the early stages of the complaint, or to the milder degrees of irritation, inflammation or ulceration. One application was generally sufficient, when, in a few days, the condensed tissue might be removed, or, if allowed to remain, was productive of no injury; it would eventually separate, leaving a healthy surface.—*Buffalo Medical and Surgical Journal and Reporter.*

Ozone Corrective of Miasmata.—Dr. Wood gives a very important fact relative to miasmata: "These effluvia are neutralized, decomposed, or in some other way rendered innoxous by the air of large cities. Though malarious diseases may rage around a city, and even invade the outskirts, yet thay are unable to penetrate the interior; and individuals who never leave the thickly built parts, almost always escape." This he attributes to the evolution of the ethereal oils, in the combustion of wood and coal, by which a large proportion of ozone is produced.—*London Lancet.*

Cure of Vericose Veins.—Dr. J. F. Miner relates three cases in which he effected a complete cure, by injecting into the internal saphena a solution of the persulphate of iron, two drops, diluted with eight drops of water, thus obliterating the vein. Phlebitis has never followed this operation, the pain is less than usually attends the ligature, and the recovery is more rapid.—*Buffalo Med. and Surg. Journal and Reporter.*

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Aloes and Assafœtida	4 "	Valerianate of Quinine	1 "
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Compound Squills	4 "	Calcined Magnesia	2 "
Dover Powders	3 "	Rhubarb	2 "
Carbonate Iron, Vallet's formula		Ergot, powder covered with sugar as soon as pulverized	2 "
Carbonate of Manganese and Iron		Phellandria Seed	2 "
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Santonine	½ "	Sub-Nitrate of Bismuth	2 "
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Lupuline	½ grain.	Extract Rad: Aconite	¼ grain.
Extract Nux Vomica	½ "	Emetine	¼ "
Veratrine	1-24 "	Iodide of Mercury	⅓ "
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Corrosive Sublimate	1-12 "	Acetate Morphine	⅓ "
Nitrate of Silver	¼ "	Digitaline	1-24 "
Extract of Hyosciamus	½ "	Strychnine	1-12 "

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